TRANSACTIONS OF AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

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JOURNAL OF CUTANEOUS AND GENITO-URINARY DISEASES

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ORIGINAL COMMUNICATIONS.

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Report of a Case of Dermatitis Verrucosa; Probably Caused by the Bacillus Coli Communis. HENRY G. ANTHONY, M.D..... 343
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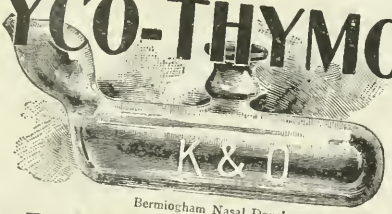

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JOURNAL OF
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VOL. XX. AUGUST, 1902. No. 8.

Original Communications.

REPORT OF A CASE OF DERMATITIS VERRUCOSA PROBABLY CAUSED BY THE BACILLUS COLI COMMUNIS.*

BY HENRY G. ANTHONY, M.D., CHICAGO, ILL.,
Professor of Skin and Venereal Diseases, Chicago Policlinic.

THE subject of this report is a case which was shown by me at the last meeting of The American Dermatological Association, as a probable case of tuberculosis verrucosa cutis. No microscopical examination accompanied the presentation of the case, as I had seen the patient for the first time the previous day.

The rapid development of the lesion caused me to hesitate in my diagnosis, hence I was particular to ask a number of the members of the Association if they concurred in the diagnosis, and of these who examined the case with care, all thought it was a case of verrucous tuberculosis, excepting Dr. Frank H. Montgomery, who said that he regarded the diagnosis as doubtful without microscopical examination, and inoculation of guinea pigs, and Dr. John A. Fordyce, who was confident that microscopical examination would show that it was a case of streptococcic dermatitis.

The patient gives the following history. He was born in Ireland, and came to this country when a boy. His father and mother are living and healthy. He has no brothers or sisters. None of his relatives have had consumption. His wife died of some pulmonary disease one year ago. He has always enjoyed good health; during the past six months he has had a cough, with expectoration.

*Read at the fifty-third annual session of the American Medical Association at Saratoga Springs, N. Y., June 10-13, 1902, in the section on Cutaneous Medicine and Surgery.

He is an encaustic-tile layer's helper by occupation. His duties are to wash newly laid tile with 50 per cent. solution of muriatic acid, in which work he is especially skilled.

Three months ago he was required to work overtime, and, becoming very tired, he burned the back of his hand with muriatic acid. The burn was not very severe; he was able to work the next day, and was required to handle tile, which was very dusty. The tile was being laid in the floor of a cemetery vault. He worked on this job several weeks. The dust from the tile penetrated the burn to such a degree that he was unable to wash it clean at night. The burn became painful, and after employing various home remedies he presented himself in the clinic three months after contracting the burn.

On examination, we find symptoms of pulmonary tuberculosis and tubercle bacilli in the sputum. The lesion of the hand is situated at the base of the thumb; it is the size of a silver dollar. Surrounding the entire lesion is an area of redness, studded here and there with dermal abscesses, from which a drop of pus escapes when they are opened. The area of redness disappears, but partially, on pressure. It is one centimeter wide, and gradually fades into the healthy skin. It is of a boggy feel, and somewhat edematous. Inside of this area is a zone of vegetating papillæ, such as occur in verrucous tuberculosis. On squeezing the lesion pus exudes from the apices of many of these papillæ, and the patient experiences considerable pain. The papillæ gradually flatten as the center of the lesion is approached.

The central zone is a fibrous scar.

Within a few days the lesion markedly increased in size, but showed no change in appearance. The lesion was dressed antiseptically, and stimulating applications, such as tincture of benzoin, were applied, and the lesion healed in three weeks' time.

The possibilities of diagnosis were blastomycosis, tuberculosis verrucosa cutis and streptococcic dermatitis.

Blastomycosis could be excluded without difficulty, and we believed that streptococcic dermatitis could also be excluded, because the cases of that disease which had been reported up to the time that this case was observed did not so closely resemble tuberculosis verrucosa cutis as did this case.

Since then Fox[1] has reported a case in which there was a difference of opinion among the members of the New York Dermatological Society as to whether it was tuberculosis verrucosa cutis or streptococcic dermatitis.

We believed that the patient had inoculated the burn with bacilli contained in his sputum, as he was in the habit of wiping his mouth with the back of his hand when he expectorated. Pus obtained by squeezing the lesion was repeatedly examined for tubercle bacilli, with negative results, remembering that in Keys's[2] case of tuberculosis verrucosa cutis bacilli were found in the pus first squeezed out, but not in that subsequently obtained.

When stained with ordinary stains, a short bacillus was found in the pus in large numbers. No other micro-organism could be discovered. We made cultures from the pus on various culture media, and invariably obtained a pure culture of this short bacillus.

The pure cultures were turned over to Professor Max. Herzog for identification, together with tissue excised from the outer zone of the lesion, for microscopical examination. His report is as follows:

"Cultures made from the pus developed a bacillus which was fully identified as the colon bacillus.

"*Histologic Examination.*—Pieces of tissue were hardened in Zenker's fluid and subsequently imbedded in paraffin and stained with hematoxylin-eosin; carmin-Gram; eosin-alkaline-methylen blue; acetic acid methylen blue. The sections show an enormous proliferation of the epidermal epithelium. The interpapillary pegs have extended greatly into the derma, and form structures as they are commonly seen in a true papilloma. Here and there these proliferated masses of epithelial cells contain cells in an advanced stage of cornification, arranged in a somewhat concentric manner. These formations, while to some extent like epithelial pearls as seen in skin cancers, are, however, incomplete,

and not at all as typical as the characteristic pearls as seen in carcinomata arising from the stratum germinativum.

FIG. 1.

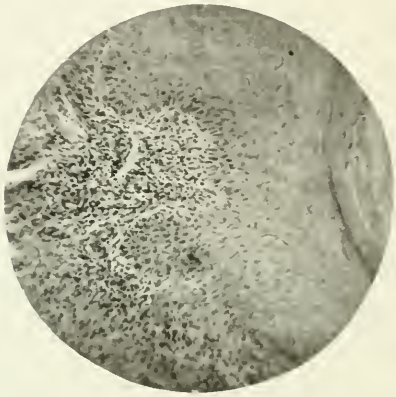

Fig. 1.—Section through epidermis and derma. Spencer. Prof. ¼ in. Oc. 25 mm. Desquamated cornified epithelia. Thickened epidermis, derma with dense inflammatory infiltration.

FIG. 2.

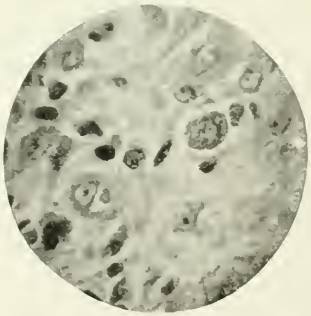

Fig. 2.—Section through derma. Oil. imm. Magnification. In the right upper quadrant an epithelioid cell, with eosinophilic granulation. In the left lower quadrant an eosinophilic polynuclear leucocyte.

"In some places the proliferated epithelial cells contain small abscess cavities filled with leucocytes, mostly polynuclear. Toward the free

surface the epidermis shows a strong tendency at cornification, and detached scales are found adherent to the skin, particularly in places where the epithelial covering has formed crevices or pockets. The derma shows the character of a granulation tissue of an acute inflammatory process. The fixed connective tissue cells have a more or less embryonal type. Many of them have large vesicular nuclei. Some show karyokinetic figures. The cells with the vesicular nuclei may be classified as epithelioid cells. Intermingled with the fixed cells are a large number of densely infiltrating polynuclear leucocytes. Quite a number of the latter contain coarse eosinophilic granules. There were also found epithelioid cells with vesicular nuclei, and with coarse eosinophilic granules. It appears, therefore, that in this process there are present fixed connective tissue cells which have formed or become occupied by eosinophilic granules.

"The derma and the subcutaneous connective tissue are quite vascular. Basophilic mast cells or plasma cells were not found in the tissues.

"No bacteria could be demonstrated at all with Gram's stain. A very few rods (bacilli) were seen in a number of sections examined."

From this report it will be seen that the only micro-organism present in the cultures was the bacillus coli communis.

The literature of the bacillus coli communis makes it possible that this micro-organism produced the lesion.

Brunner[3] says: "That the bacillus coli communis plays an important part in wound infection is proven by certain cases of panaritium, phlegmon, and lymphangitis, from which it may be cultivated in a pure culture." He reports the following case: The patient presented himself with a foul-smelling ulcer of the volar surface of the right index finger. This ulcer resulted from a small wound produced by running a splinter into his finger a month ago. The wound was neglected for some time, and he continued to work in spite of pain and swelling of the affected part. Finally he consulted a physician. On examination the volar surface of the thickened index finger was seen to be the seat of an ulcer, which was the size of a franc. Its surface was covered with a dirty gray exudate, and it produced an offensive odor.

Cultures were made from the surface of the ulcer on to glycerine-agar, and showed two different kinds of colonies of micro-organisms; one was bacteria coli communis, and the other streptococcus pyogenes.

Brunner mentions several similar cases reported by other observers, among which is the case of Sevestre, who observed a severe general infection, the only possible source of which was a subungual panaritium. The bacillus coli communis was found in several metastatic lesions,

while in the pus of the original atrium of infection only streptococci were found.

Henke also believes that this bacillus may infect a wound or slight injury of the surface of the body, and that it is not necessary for penetration to occur by the blood channels from an existing intestinal infection.

Bieth[4] says that typical blenorrhea neonatorum may be caused by the bacillus coli communis.

From these statements it will be seen that this micro-organism, when found in external wounds, has usually been present in association with the streptococcus pyogenes, and although we could find no streptococci in our case, we would not exclude the possibility of their having been present in the beginning of the infection, and we would not affirm positively on the authority of a single case that the bacillus coli communis is alone capable of producing such a lesion.

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[2] *Dermatologische Zeitschrift*, Bd. I.
[3] *Centralblatt f. Backteriologie*, Bd. 16, p. 993.
[4] *Centralblatt f. Backteriologie*, Bd. 16, p. 482.
[5] *Centralblatt f. Backteriologie*, Bd. 27, p. 163.

ON RESORBIN.

By Rheinhold Ledermann, M.D.,
Specialist in Diseases of the Skin, Berlin.

AMONG the medicinal preparations employed in the treatment of diseases of the skin, ointments have long played a prominent part. While the number of drugs admixed to the ointments has in the course of time increased immeasurably, the multiplication of ointment bases has fortunately not kept pace with that of the drugs, and only a few of them have gained a permanent place in the dermatological pharmacopeia. The latter group includes one which I introduced to the profession in 1893 after numerous successful experiments, and which possesses a certain interest in different directions by reason of its composition—namely, resorbin. This is a fat emulsion consisting of almond oil, wax and water, combined by the addition of a minute quantity of gelatin; in order to improve its consistency and stability a small amount of lanolin has been incorporated with it. Unguentum leniens, which has long been known but is unsuitable for many purposes on account of its thin consistence, is somewhat similar to this fat emulsion; but in the production of resorbin the paramount object was extreme subdivision by emulsification of the fat globules, so that these should more readily penetrate the openings of the cutaneous follicles and into the dry, partly cornified layers of the epidermis. The views prevailing at the time led me also to expect that the deeper layers of the skin would likewise be penetrated by this ointment base which is especially intended for this purpose, and the idea of an increased absorbability was to some extent responsible for the name given to it. This erroneous assumption is quite pardonable, for only very gradually did the conviction gain ground that an absorption of an ointment base never occurred in the normal skin. However, as resorbin was ultimately intended not for the normal but for the diseased skin, and as the latter does absorb easily, as all authorities admit, the objection raised against the name at the time is baseless, all the more since experience has fully confirmed the ready absorbability of the preparation.

The therapeutically available qualities of resorbin fully answer the requirements that can justly be made *a priori* of a remedy having the composition given above. The ointment, being a fat emulsion, can be

rubbed into the corneous layer and the follicles without energetic massage, so that merely a slight residue of fat remains on the surface. Hence, when the ointment is used in this manner an occlusive dressing is usually unnecessary, and this circumstance is of great value especially in the treatment of visible parts of the body and those exposed to the air, such as the face and hands. Thus, Hahn writes, ("Ueber Resorbin". *Monatshefte für Dermatologie,* 1894, Bd. xix.): "I was induced to try resorbin mainly by the fact that many affections could not be treated with sufficient energy and regularity, so that the curative results did not ensue rapidly enough; *e. g.*, in facial eczema and especially in the acne of young girls. Too much resistance is encountered on the part of female patients who dislike to show themselves with an ointment applied. When a resorbin ointment is properly rubbed in for from one to two minutes it disappears almost entirely (the last visible remnants of fat are easily wiped off with a dry rag) and matters are greatly facilitated. Görl expresses himself to the same effect ("Resorbin, speciell bei der Behandlung der Skabies und Lues." Nach einem in der mediz. Ges. und Poliklinik in Nürnberg gehaltenen Vortrag. *Monatshefte für pract. Derm.*, 1895, Bd. xx.), namely, that resorbin really possesses the property of penetrating more easily into the skin than any other ointment base heretofore known. At the same time he emphasizes the fact that this rapid disappearance from the skin is in part to be ascribed to the large amount of water contained in resorbin.

Owing to this contained water, the remedy acts also as a cooling ointment, whose effect, according to Unna ("Allgem. Therapie der Hautkrankheiten," 1899), is due above all to the evaporation of its water when it is applied to the warm skin. He says that a second cause of the cooling is that such ointments, by reason of the contained water, do not restrain the evaporation of water from the skin to the same extent as do the purely fatty ointments, especially those of firm consistence, so that transpiration continues, though reduced, and contributes to the cooling. Resorbin possesses this quality, relieves itching and allays inflammation, and has therefore been employed with success in all pruriginous skin diseases of nervous or inflammatory origin, applied either pure or in combination with other drugs known to relieve pruritus. As an excipient with extraordinary sedative effect in intense itching of the skin, Joseph ("Ueber Bromocollsalbe." *Derm. Centralblatt*, 1900-1901) recommends bromocoll, a grayish-yellow powder insoluble in water and dilute acids but soluble in alkalies, which is chemically a dibrom-tannin glue and which, added to the amount of twenty per cent. to resorbin, has proved useful in puritus localis, especially genitalis, and

in puritus universalis, also in lichen ruber planus, lichen simplex chronicus, purigo mitis, and the various forms of urticaria.

Unna (*loc. cit.*, p. 848) ascribes the action possessed by resorbin of softening the corneous layer and thus favoring absorption to a small percentage of soap in the preparation—that is, he looks upon the effect as that of an alkali. This view can hardly be concurred in; for, while this ingredient was at first contained in the preparation, it was soon discarded in the manufacture, on account of the irritating effect occasionally observed. Soap, therefore, was no longer present in the preparation that Unna regarded with favor. The above-mentioned action, therefore, can be due only to the emulsified fat in the resorbin, by which the absorption of the most minute globules into the corneous layer is facilitated. At any rate it appears to me of importance in this connection to point out that Unna, who is generally so skeptical concerning therapeutic claims, concedes to resorbin this absorbability—a point, to the discussion of which I shall recur hereafter.

The marked softening of the superficial layers of the skin produced by resorbin shows that the ointment, with or without the addition of other drugs, is indicated in all affections in which it is desirable that the corneous layer be permeated with fat—that is, for the removal of crusts and scales in different skin diseases such as pityriasis capitis and faciei, in crusting and squamous eczema, in impetigo, psoriasis and ichthyosis, also in all forms of dermatitis associated with rhagades. In such cases resorbin acts partly by supplying the lack of subcutaneous fat so as to relieve excessive dryness of the skin, partly by being directly curative.

In most skin diseases, however, we are not dealing with an isolated involvement of the epidermis, but the cutis is implicated at the same time; in many, indeed, the latter is primarily affected and the epithelium suffers secondarily. In these cases simple greasing of the skin with one of the ordinary ointment bases is generally insufficient, and we require the admixture of drugs to produce the desired curative effect. The ointment base then acts as a vehicle for the drugs to be introduced, and of course that ointment base is to be preferred which favors the rapid and reliable penetration of the medicament into the diseased skin. For such purposes resorbin is particularly appropriate, as is shown by the therapeutic results . Thus with the addition of zinc, sulphur, bismuth, tar and other substances, it has proved especially effective in the treatment of psoriasis and scabies, also in subacute and chronic eczema (O. Muller especially recommends for eczema intertrigo in nurslings an ointment containing boric acid 5 gm., dermatol 10 gm., and resorbin 100 gm.: this he advises to be generally employed,

moreover, as a prophylactic against intertrigo in infants). In many cases dispensary treatment could be carried out by this means, when otherwise it would have been impossible.

In the treatment of psoriasis, chrysarobin, pyrogallol, white precipitate and salicylic acid furnish with resorbin excellent ointments that render occlusive dressings largely superfluous. At the same time the effect is more rapid than with ointments having other constituents. Of course, such ointments being readily absorbed, the danger of drug intoxication is somewhat increased with them and therefore it is good practice to reduce the quantity of the active ingredient in resorbin ointments. In scabies, when the skin presents marked irritation, I order a resorbin ointment containing thirty per cent. of Peru balsam: in this the odor of the drug is pleasantly masked. When the irritation is slight, I prescribe a resorbin ointment containing ten per cent. of naphthol or epicarin (Kaposi) and six per cent. of sulphur: with this the patient is annointed four times in the course of two or three days. The after-treatment for the removal of the artificial irritation consists in the application of a thirty per cent. zinc-oxide-resorbin ointment. During the treatment the patients can attend to their business undisturbed, as they are not troubled with the greasy feeling of the skin which is otherwise so common after general innunction with ointments.

In the treatment of scabies when the skin is not very sensitive, Görl employs an ointment composed of sulphur 30 gm., beta-naphthol 20 gm., green soap 50 gm., and resorbin 150 gm., and advises to omit the green soap when the skin is delicate.

Hahn as well as Görl has been able to report satisfactory curative results in herpes tonsurans and parasitic sycosis from the use of resorbin ointments containing appropriate quantities of naphthol and other substances. In the treatment of lichen ruber I have been well satisfied with Unna's zinc-sublimate-carbolic ointment having resorbin as an excipient; this greatly relieves the itching; in the rare cases in which it fails it may well be replaced by the above-named bromocoll-resorbin ointment. In the dressing of well granulating wound surfaces which are beginning to skin over, resorbin forms a suitable vehicle for tumenol, iodoform, silver nitrate and Peru balsam. Strange to say, iodoform, which in many cases we cannot do without, loses some of its odor when mixed with resorbin and is therefore preferred by the patients to corresponding ointments having lard or vaseline for a base. Pledgets of linen or lint coated with resorbin require more frequent changing, as they dry in a short time, owing to the rapid penetration of the fat into the wound.

Resorbin ointments combined with potassium iodide according to

the ordinary formulæ of the pharmacopeia, whether applied to the intact or to the diseased skin, would not be expected *a priori* to produce a marked effect, as the greater portion of the iodide dissolves in the evaporating water of the base, and when the ointment is rubbed in, does not reach the epidermis but remains as a concentrated solution on the skin and evaporates. This fact has been confirmed by Lion in his experiments. On the other hand, in the application of potassium-iodine-resorbin ointments to mucous surfaces we may expect an absorption equal to that with watery solutions, and R. Müllerheim at the Strasburg gynecological clinic after introducing a potassium-iodine-resorbin tampon into the vagina observed the occurrence of violent acute iodism.

As a vehicle for introducing medicaments into the body resorbin in combination with salicylic acid has found application in the treatment of acute articular rheumatism, and in combination with mercury in the therapy of syphilis.

Thus M. Weiss ("Zur Behandlung des acuten Rheumatismus mittels cutaner Anwendung der Salicylsäure." *Wien. med. Presse*, Nos. 48 and 49, 1895) reports the case of a four-year-old boy, whose obstinacy rendered all internal medication impossible. On the fourth day after the cutaneous application of an ointment containing 10 gm. of salicylic acid and 100 gm. of resorbin the child was free from fever, and the swelling of the joints was gone on the eighth day. A subsequent relapse was promptly relieved by the same treatment.

Of most importance is the combination of mercury with resorbin in an ointment resembling the official blue ointment—resorbin mercurial ointment (unguentum hydrargyri cinereum cum resorbine paratum). This is a factory product and therefore always uniform; it is placed on the market in 33⅓ and 50 per cent. strengths. The former is commonly used, the latter only in exceptional instances. For special discretionary purposes the ointment is also furnished by the factory colored red by the addition of cinnabar; this is employed in female and family practice, hence especially for lues insontium. It is dispensed in graduated glass tubes having a movable cork bottom, so that the ointment can be easily expressed by means of a wooden rod accompanying each tube. In the ointment containing 30 gm. each division of the scale represents 1 gm.; in those containing 15 gm., which are intended for children, each division represents 0.5 gm. Hence the patient need only be told how many divisions he should advance the bottom of the tube for each application in order to obtain the amount of mercury prescribed. This method, which Lassar (*Derm. Zeitschrift*, Bd. 1, Heft 4) terms original and practical, has proved to be entirely successful, especially as the residual remnant of the ointment is protected from all

impurities. Mercurial resorbin has a dull gray color, somewhat lighter than that of the official mercurial ointment, and a faintly aromatic, pleasant odor. The microscopical examination of the ointment, made at Hofrath Neumann's clinic in Vienna, shows, according to Silberstein ("Das Quecksilberresorbin, ein Ersatzmittel der grauen Salbe und dessen Anwendung." *Wien. med. Wochenschrift*, No. 8, 1900), that the globules of mercury, contrary to what obtains in the official ointment, are uniformly distributed, their diameter ranging between 2 and 4 μ As the ointment is very soft, it can be most rapidly rubbed into the skin and even after an inunction lasting but from eight to ten minutes it can be seen that it has disappeared, leaving only a dull gray reflex, but no other fat residue on the skin. This observation, which has been repeated in many places and uniformly confirmed has moreover been proved experimentally by Hugo Muller of Mayence ("Untersuchung über die Einverleibung verschiedener Quecksilbersalben in die Haut." *Therap. Monatsch.*, 1896, No. 11). The reduction of the time of infriction to one-third of that usually necessary forms, according to Silberstein, one of the most material advantages of mercurial resorbin, which, therefore, may also find suitable application in anemia and debilitated persons, owing to the shorter time of incorporation. Another advantage consists in the lessened soiling of the linen —a matter that rendered a course of inunction with the official ointment an object of disgust to the patients, owing to the filthiness inseparable from it. With resorbin, however, inunction has again come into favor and in many cases is preferred to a course of injections which is not equally well borne by all patients.

The efficacy of mercurial resorbin is absolutely equal to that of the official ointment, despite the shorter time consumed in the inunction. This is borne out by the favorable results of treatment in more than a thousand cases with the ointment in the most different processes of early and late syphilis, affecting the skin and mucous membranes as well as the central nervous system and other vital organs. The symptoms yield rapidly and relapses are no more frequent than usual. In addition I have notes of a number of cured cases treated exclusively with mercurial resorbin, in which the disease was never transmitted either to the wife or to the offspring. The frequent occurrence of gingivitis observed by Crippa, myself and others during the course of inunction can be regarded only as a proof of the more thorough absorption of the mercury by the body; but it may be easily avoided, without endangering the prospect of success, by reducing the daily amount of mercury in the more senstive patients. Owing to the excellent results of the treatment, Neumann of Vienna was even tempted to shorten the dura-

tion of the treatment with mercurial resorbin inunctions; yet I would hardly advocate this measure, since we must judge of the effects of mercury not only by the immediate results, but in the treatment we always leave in the body a certain deposit of the metal which is to exert an after-effect when the visible symptoms have disappeared. The question which at present is largely discussed in Germany, as to the manner in which mercurial ointments act in courses of inunction, whether by absorption through the skin or by inhalation, is practically immaterial with mercurial resorbin; for in fact both methods of incorporation of the metal are active. The occurrence of absorption through the skin is proved by the before-mentioned investigations of H. Müller. A short time after inunction with mercurial resorbin he found the metal in his microscopical preparations in the form of globules and granules not only between the superficial epithelial layers of the epidermis, but also in the follicles and along the hair shafts to a considerable depth. A portion of the mercury, which is found deposited on the surface of the skin in impalpable subdivision, is taken into the body by inhalation, and this mode of incorporation will be more energetic in proportion as the evaporating surface is larger. For this reason I have always advised to spread the amount of mercurial resorbin required for each inunction over as large a surface as possible. I direct that the ordered quantity of ointment be rubbed in on the first day over an entire lower extremity from the hip to the dorsum of the foot; on the second day over one arm with the adjoining half of the chest, abdomen and back; on the third day over the other lower extremity; on the fourth day over the other arm and the corresponding half of the body. On the fifth day the patient takes a bath and continues the course on the same day. I calculate for the first main course forty inunctions with from 120-150 gm. of ointment; in the later courses, which are carried out according to the Fournier-Neisser plan with intermissions, correspondingly fewer inunctions are required. When pursued in this way a course of inunctions with mercurial resorbin represents an effective, cleanly and convenient method of treatment for syphilis.

Besides inunctions, mercurial resorbin is used in the form of external applications according to Welander, especially in grave pustular syphilides of the skin and for this purpose it is warmly recommended by Joseph in his text-book on diseases of the skin and genital organs. Another mode of application is one introduced by Herxheimer in the treatment of syphilis, the so-called "Einklatschungen," which can be most rapidly effected especially with mercurial resorbin.

With the exception of resorcin which liquefies resorbin, the latter may be combined with all known fats and drugs. In some combina-

tions, the execution of which may safely be left with the pharmacist having the necessary technical facilities, certain additions are required, to which attention has been called by J. Mindes ("Ueber Resorbin als Salbengrundlage," *Pharm. Post*, 1900, No. 28). Thus, in making a ten-per-cent. thiol-resorbin ointment, the addition of a minute quantity of powdered soap is sufficient to produce an elegant smooth ointment. For substances requiring for incorporation previous solution in water, such as silver nitrate, it is advised to use water as sparingly as possible, owing to the water contained in the resorbin. Substances which, though soluble in water, are nevertheless active in a dry state, should always be mixed with resorbin in a dry condition. In some cases, as with ichthyol-resorbin ointments, an addition of sapo kalinus is useful. Still, as said before, these technical points concern the pharmacist, who is familiar with them. With the one exception named above, the physician may prescribe any desired combination with resorbin as an ointment base. Only mercurial resorbin is placed on the market ready prepared in graduated tubes. This, like resorbin itself, is manufactured by the Actien-Gesellschaft für Anilin-Fabrikation of Berlin.

Use has been made of the following ointments, which can therefore be recommended for the affections named. (Comp. also Dr. R. Ledermann: "Therapeutisches Vademecum der Haut und Geschlechtskrankheiten," 2te Aufl., 1901, Berlin; O. Coblentz.)

1. Acid. salicyl. ..... 2—5—10 gm.
   Resorbin ..... ad 100 gm.

M. f. ung. For the removal of squams and crusts in eczema psoriasis, pediculosis and seborrhea.

2. Acid. boric ..... 4 gm.
   Resorbin ..... ad 100 gm.

M. f. ung. For eczema, rhagades, chapped hands, etc.

3. Flor. sulphur ..... 10 gm.
   Resorbin ..... ad 100 gm.

M. f. ung. For infantile eczema, seborrhea sicca, acne and comedones.

4. Bismuth. subnitr. ..... 10 gm.
   Hydrarg. precip. alb. ..... 5 gm.
   Resorbin ..... ad 100 gm.

M. f. ung. For chronic eczema capitas et faciei in children (without dressing), also syphilitic papules on the face and head.

5. Zinc. oxydat. alb. ..... 30 gm.
   Resorbin ..... 70 gm.

M. f. ung. For papular eczema and intertrigo.

6. Tumenol .....5—10 gm.
Resorbin .....100 gm.

M. f. ung. For intensely itching eczemas in all stages, also pruritus senilis.

7. Liquor. alum. acet.....10—20 gm.
Resorbin .....ad 100 gm.

M. f. ung. For artificial dermatitis. Cooling ointment.

8. Olei rusci (vel. Ol. fagi.).....5—10 gm.
Resorbin .....100 gm.

M. f. ung. For chronic infiltrated eczemas and dysidrosis of the hands.

9. Bromocoll .....20 gm.
Resorbin .....ad 100 gm.

M. f. ung. For nervous pruritus, lichen ruber and simplex.

10. Naphthol. (vel. Epicarin).....10 gm.
Flor. sulph.....6 gm.
Resorbin .....100 gm.

M. f. ung. For scabies.

11. Balsam. peruv.....20—50 gm.
Resorbin .....100 gm.

M. f. ung. For scabies.

12. Arg. nitrat. .....1 gm.
Balsam peruv.....10 gm.
Resorbin .....100 gm.

M. f. ung. For granulating wounds, and in chronic gonorrheas for lubricating the catheter.

13. Europhen .....1 gm.
Resorbin .....20 gm.

M. f. ung. For eroded balanitis and wounds.

14. Acid. pyrogall. (vel. Lenigallolii).....10 gm.
Resorbin .....100 gm.

M. f. ung. For psoriasis and lupus.

15. Hydr. oxyd. flav. via humida parati.....1—2 gm.
Resorbin .....100 gm.

M. f. ung. For chronic blepharitis.

16. Ung. hydrarg. ciner. c. Resorbino parati (Mercurial Resorbin), 33⅓ per cent.....30 gm.
Da ad tubam graduatam.

17. Ung. hydrarg. rubr. c. Resorbino parati, 33⅓ per cent., ...30 gm.
Da ad tubam graduatam.

18. Nos. 16 and 17 also in 15 gm. tubes with half gm. divisions.

Book Reviews.

Syphilis, Chancre and Secondary Syphilis. VOUZELLE. Masson etcie, 120 Boul. St. Germain, Paris. Price, 3 francs.

The reason for publication of a work on this subject which the author gives, is its combined brevity and completeness. It is frankly a compilation from French authors from Ricord to Fournier, a scientific and literary hash which is good or bad, as the author is competent to judge, or the reverse. It may be presumed that he is the former and that his book fairly represents the French school. It is almost altogether a clinical study. Little space is given to history, pathogeny and pathological anatomy, none at all to treatment. The supposition is reasonable that there is to be a companion volume treating of late manifestations and therapy. Unfortunately, in life the line between early and late is not clearly drawn, as it is in books.

Vegetable Parasites in Man. E. BODIN. Masson et Cie. Price, 3 francs.

This work has a real usefulness. There is no other which covers this particular field and gives the necessary insight into general characters of fungi infesting human beings. The first part takes up these points, classification, nutrition and pleomorphism, which the author regards as one of the most curious problems of mycology. Besides this, there is consideration of genesis, mechanism and the technic required for the study of the moulds. The second part deals directly with parasites which attack human beings, achorion, trichophyton, microsporon, those of exotic diseases, erythrasma, streptothrix, yeasts, oidium, aspergillus and mucorini. Bodin follows Labouraud pretty closely throughout his treatment of the trichophytons, both in and outside the body. The blastomyces, possibly because there is no case in French literature, is not mentioned. It should be remembered that this is a mycological, not a clinical study.

Society Transactions.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Sixteenth Annual Meeting, held at Marlborough House, Atlantic City, New Jersey, April 29th and 30th, 1902.

The president, Dr. William T. Belfield, of Chicago, in the chair.

Officers elected for the ensuing year:

For President, Dr. Paul Thorndike, of Boston, Mass.

For Vice-President, Dr. Edwin C. Burnett, of St. Louis, Mo.

For Secretary and Treasurer, Dr. John Van der Poel, of New York.

For Council, Dr. William T. Belfield, of Chicago, and Dr. James R. Hayden, of New York.

Next place of meeting, Washington, D. C., May 12, 13, 14, 1903.

The Technique of Prostatectomy; Cases and Specimens in Illustration.—Dr. John P. Bryson, of St. Louis, described the technique as follows: After the usual preliminary preparations, a broad, grooved staff was introduced and a free perineal incision made, opening the urethra just in front of the apex of the prostate. The knife, after entering the groove of the staff, is pushed far enough back to incise the ring at the apex of the prostate. The forefinger follows well into the prostatic urethra and the staff is withdrawn. The finger quickly exposes the prostatic urethra and ascertains whether the vesical outlet can be reached; after which the forefinger of the right hand in the rectum permits a bi-manual examination of the prostate within reach. Guided by the finger, a blunt instrument is now passed into the urethra and made to puncture from the urethral side the most prominent part of the mass, and then the instrument is pushed well into the swelling. On its withdrawal the finger tears its way into the centre of the mass which, even in fibrous prostates, is comparatively friable. The mass is now opened through to its capsule, the finger swept round its periphery without tearing the prostatic capsule or fibrous sheath of the gland. The floor is felt to tear longitudinally. After the lobe has been loosened all around there remains the attachment to the urethra, in detaching which care must be taken not to remove too much of the sides nor any of the roof of the urethra. The hypertrophied lateral lobe is then removed, to do which one has often to go well up behind and beside the neck of the bladder; yet it is possible to do this and keep within the capsule. Very little bleeding follows. The detached mass may be delivered with an ordinary lithotomy forceps, or may be broken up with the finger, or divided with scissors. This process is repeated on the opposite side, after which a median posterior segment remains to be dealt with, which can be usually done by sweeping the finger from side to side, pushing it backwards in such a way as to detach it well up behind the bladder and roll it downward. One may often be surprised to find that he may get behind and excochleate what he had just felt as a pedunculated intravesicular projection, or a growth *en collerette*,

bringing it well down by use of the forceps apparently without disturbing the fibrous ring at the vesicle outlet. The more the detached mass is rolled downwards by pulling upon its upper surface, the less mucous membrane is removed. Usually now the finger may be passed through the ring into the bladder which may be explored thoroughly. The bladder is now irrigated with hot saline solution until the oozing ceases. If the finger be now introduced the floor and the sides of the urethra will be found intact, the latter often hanging loosely against the outer wall or sides of the cavity from which the growths have been removed. A large cavity is made out between the lower part of which and the rectum there is felt a thin wall. Into the lower part of this hinged posteriorly about the ring at the vesical neck is an irregular flap of mucous membrane, which can be pushed back and often made to occlude the vesical outlet. Care must be taken not to double backwards and push this flap into the bladder when the large drainage tube is introduced.

The Use of the Cautery on the Prostate through a Perineal Opening. New Method, with Presentation of Instrument and Report of Cases.—DR. WM. N. WISHARD, of Indianapolis, See page 245, June, 1902.

The Surgical Relief of Prostatic Hypertrophy.—DR. CHARLES H. CHETWOOD, of New York, read this paper from which he found the following personal impressions: Palliative measures should not be persisted in when they fail, after reasonable duration, to produce and maintain an abatement of symptoms. A first infection of the bladder is not alone sufficient excuse for operation unless palliative measures fail to promptly subdue inflammatory conditions. Recurring infection of the bladder or ascending infection of the kidney is sufficient warrant for operative interference. There is a growing tendency toward earlier operation than was formerly practiced. The greater number of cases of prostatic hypertrophy can be satisfactorily reached through a perineal incision. In the large majority of cases, the requirements of any operation upon the prostate consist in the removal of the obstructive area and depressing the bladder opening into the prostate, so that the *bas fond* may be properly drained. In many cases the obstructing area of the hypertrophied gland can be satisfactorily removed through a perineal opening by means of the galvano-caustic incisions. Perineal-galvano-prostatotomy is preferable to the Bottini operation on account of its greater accuracy and lower mortality.

Bottini's Operation.—DR. HENRY H. MORTON, of Brooklyn, presented a case occurring in a patient aged seventy-eight years, who for one year prior to the operation had been complaining of tenesmus and frequent and painful urination, and at the time of his admission to the hospital there was complete retention of urine, an examination revealing 24 ounces of residual urine. At this time the prostate was observed to be 1½ inches in diameter, and the cystoscope revealed an enlarged middle lobe and trabeculated bladder. The urine was acid, cloudy, with a specific gravity of 1016, and showed a slight sediment which contained pus cells but no casts. Bottini's operation was performed, three incisions being made, the anterior one being 2 c.m., the posterior 3 c.m., and the left lateral 2 c.m. in length. Catheterization was necessary until the third day after the operation, when the patient began to urinate spontaneously. Eleven days after the operation micturition occurred every hour during the day and five times at night, catheterization being performed once daily with a withdrawal of three to four ounces of residual urine. One month after the operation the patient urinated six times daily and four times at night and, although the stream was slow in

starting, it was ejected with good force. The cystoscope at this time showed the posterior lobe of the prostate with a cleft in the middle made by the Bottini incision, and the patient continued to be in good general health, being up and about the ward. Subsequently his appetite and general vitality began to fail, and fifty-four days after the operation he died.

A complete autopsy was not permitted, but the bladder was examined and found to be contracted. It contained a small quantity of thick and foul pus; many necrotic areas were scattered about the surface, and a number of small sacculi, one containing a small calculus, were observed. Traces of the posterior incision were very distinct. The interureteral fold of the mucous membrane had been divided, and the middle lobe of the prostate cleft in halves, necrotic areas being visible at the apex of each half. The left lateral incision had not split the prostate and no trace of the anterior incision was visible. The kidneys were not examined but, as previous urinalysis had revealed the absence of casts, the cause of death was probably cystitis, which had been greatly aggravated by the operation. The middle lobe of the prostate was completely divided into two halves. The reduction in size of the prostate following the Bottini operation probably results from the sloughing subsequent to the burning. The difficulties of placing the instrument in a correct position were shown by the fact that the left lateral incision did not divide the left lobe of the prostate, as intended, but only lifted up the mucous membrane covering it, while the anterior incision was not made at all. The obstruction to urination was relieved by a single incision through the posterior median lobe of the prostate, and death did not occur until seven weeks after the operation, at which time the relief was complete. The only reasons he was kept in the hospital until his death was for bladder washing and because he had no home and, had he left the hospital as soon as he was able to go after the operation, his case might have been reported as one of complete retention of urine in a man seventy-eight years of age entirely cured by the Bottini operation.

Prostatectomy.—DR. HENRY H. MORTON, of Brooklyn, reported the case of a patient aged sixty-two years, who entered the hospital suffering from retention of urine, due to prostatic enlargement. Attempts had been made by his physicians to introduce a catheter and a false passage into the prostate had resulted. At this time no instrument could be passed into the bladder and so external urethrotomy without a guide was performed. For three weeks subsequent to this the bladder was drained through a 30 catheter; it was then removed but owing to the fact that the patient could not urinate, it was again introduced and allowed to remain two weeks longer, at which time prostatectomy was performed. The method employed was a suprapubic cystotomy to depress and hold the prostate and the perineal wound was used to shell out the prostate from its capsule. No difficulty was experienced in enucleating three tumors from 1 to 1½ inches in diameter; no hemorrhage followed the operation. Drainage was accomplished through the perineal and suprapubic wounds. Patient did well for three days, during which time the drainage was perfect, but later he developed sepsis and died ten days after the operation. The autopsy showed the suprapubic wound intensely infected; the cavity from which the prostatic tumors had been removed was healthy in appearance and indicated that it would have healed entirely by granulation. The obstruction to urination had been entirely releaved by the enucleation of the prostatic tumors.

Removal in Toto of All Three Lobes of the Prostate by Suprapubic Cystotomy.—DR. CHARLES L. GIBSON, of New York, presented this specimen which was removed from a patient, sixty-two years old, who was admitted to the hospital July, 1901. History of increasing obstruction of urine for past six years. Urine frequently dribbles away. Examination by rectum shows a considerable degree of enlargement of both lateral lobes. There were 15 ounces of residual urine obtained on several occasions. Moderate cystitis. No evident kidney lesion. Prostatectomy by the Alexander method was undertaken, but the first step, however, revealed the bulging of the prostate into the lumen of the bladder so distinctly that he determined to remove the enlarged portions by this direct approach. The vesical mucous membrane was incised over the urethral orifice, and he then found that his finger could easily be swept all around the prostate; so, in a few seconds, he brought out the whole prostate *en masse*. The urethral outlet must have been avulsed, but of this he was not aware, so the prostate was simply shelled out without any force and without much bleeding. The operation was completed by adding a perineal boutonniere for drainage. The result promised to be favorable as there was no reaction. On the fourth day the dressings were changed, the bladder washed out, and the patient's condition appeared to be admirable, with a normal temperature and a free secretion of urine. Yet, six hours later, the patient died without any particular manifestations. No autopsy was permitted.

The case was presened, not to recommend that the prostate should be removed *in toto* with the necesasary drawback of destroying the urethral outlet, but for the purpose of emphasizing how easily the prostate, or portions of it, can be removed without destruction of tissue or hemorrhage provided one clearly enters the essential line of cleavage.

DISCUSSION.

DR. EUGENE FULLER, of New York.—During the past year and a half I have performed twelve perineal prostatectomies. I do not mean by this that I have given up the suprapubic method because I have done more than twelve by that method in the same time. Out of these twelve cases I have had one death, the patient dying of delirium tremens. The oldest among these patients was a man of eighty-one years of age, with atheromatous arteries with much infiltration of the arterial coats shown at the wrists and in the temporal regions. I removed the prostate entirely through the perineum. At the time of operation I knew my patient had a stone in his bladder which I intended to crush but I had no chance of doing so through the perineal opening, as the lithotrite I had proved of insufficient strength. It was an extremely large mulberry-shaped calculus, made up of oxalate of calcium, and I thought there would be too much danger of damaging the tissues if I attempted to drag it through the perineal opening; therefore, I thought it better to make a suprapubic opening, which I did. The suprapubic wound gave me no trouble at all. Another one of these cases had tuberculosis of one lung in a late stage, and as it was not deemed advisable to administer a general anesthetic, spinal anesthesia was employed. This patient recovered well from the operation and the anesthesia, but died six, seven or eight months later of progressive tuberculosis.

Regarding the choice of operation, I think that the size of the prostate is only one of the points that should enter into our consideration. I think you can get

out a large prostate by breaking it up and removing it through the perineal opening, but I do not think it is always the wisest plan to attempt this. If you are dealing with a man thick of body, even if he has not a large prostate, you may have difficulty in reaching the prostate through the perineal incision; of course, one might do the perineal operation and cauterize, but that is not really a prostatectomy.

In reference to hemorrhage following prostatectomies it is said that there is less hemorrhage following the perineal operation than after removal of the prostate by the suprapubic route. You may have hemorrhage at times after either operation. In making a choice of operation the condition of the bladder should be carefully studied. Suppose you have a man who has an atonic and distended bladder, or one markedly sacculated; in such a case I think that the operator who would try to do a perineal prostatectomy would be doing foolish surgery. In such an instance clots would probably form in the bladder and remain there, perhaps, necessitating a secondary suprapubic cystotomy to dislodge them, thus averting a death from hemorrhage and vesical tenesmus. In cases of atony of the bladder, or hypertrophy of the bladder walls complicated with sacculation and with vesical hernial protrusions, I do not think it is well to approach the prostate through the perineum even though one can get it out easily by that route.

Many times, after prostatectomy, the bladder needs a long period of rest before resuming its function successfully. To get such rest long continued drainage is essential to enable it to regain strength and undergo such a change as will permit it to expel the urine. Many patients cannot stand the perineal tube for a long time, and from some it must be removed at the end of a few days. If the perineal tube becomes troublesome it has to be removed even though the condition of the bladder, the renal pelves and kidneys demand a long continued drainage; whereas suprapubic drainage can always be continued indefinitely. So that, in those cases where you have, for instance, a large prostate which can be removed by the perineal route it may not be the wisest procedure. On one occasion I had an extremely large prostate to deal with, and in making the attempt to get it out through the suprapubic route I found that an old attack of peritonitis had so bound down the peritoneum that I could not expose the bladder without opening the peritoneal cavity. I had consequently to close the suprapubic opening and go in through the perineum. I split the prostate in two pieces and delivered them with a pair of curved forceps which grasped the pieces in the same way as obstetrical forceps grasp the head of an infant in delivery.

With reference to the use of the cautery through the perineum, I have not had any personal experience. After opening the perineum I should naturally prefer directly removing an obstruction to leaving it in situ and cauterizing it. I have enjoyed the papers of Dr. Chetwood and Dr. Wishard. Certainly two of Dr. Wishard's cases were very old, one seventy-eight years, the other eighty-five years. The oldest I have operated upon by enucleation was eighty-one years of age. In such an elderly individual as one of eighty-five if cauterization showed itself to be a surgical ordeal of less severity than removal it might be preferable.

DR. FRANCIS S. WATSON, of Boston.—It is always interesting to watch the swing of the surgical pendulum and the papers we have just had the pleasure of hearing are a good example of its movements, for they have brought it back to almost the same point from which we set out about fifteen years ago, as may be seen by the view which I expressed in 1888 before this society in the follow-

ing words: "Anatomically two-thirds of the cases are operable through the perineum. Clinically the perineal operations are the safest. The inevitable conclusion from these facts is this: In a given case, open the membranous urethra, put in your finger and explore. Twice out of three times, the operation can be completed by this route. In the other third of the cases, the long perineal distance, or the form and size of the median enlargement, will make the suprapubic operation necessary. When this is the case proceed to do it at once, or later according to the patient's condition." It was pointed out in that same communication, that *no one operation* was suitable for all cases, and that cases in which there were moderate size, more or less pedunculated, median enlargements, or bars, could be treated through the perineal opening by snare or galvano-cautery instruments, and an instrument of the later variety which I had devised, was described and figured. From that point we were led by the advocacy of our President, Dr. Belfield, by McGill and Atkinson of Leeds, and others, to the increasingly frequent use of the suprapubic method, then by way of Alexander's method of removal of the gland through the sides of the deep urethra, combined with a suprapubic cystotomy as an aid to so doing, back to the point where we began, if we may judge from the tenor of these papers read here to-day, which may be taken as a fair index of the best judgment of the American judgment at this time.

Such further experience of the radical operations as I have had since that time when we first discussed this subject, has brought with it certain pretty definite convictions which are these: (1) That in practically all cases in which the removal of the whole of the gland is undertaken, no other instrument than the tip of the finger should be used, the exceptions are those in which enucleation *en masse* or of the whole of each lobe separately is impossible, because of the intimate connection between the gland and capsule, and in which they have to be removed piecemeal; in such condition one or another of the variety of instruments may be needed to do the operation, otherwise and, as a rule, there is much less danger of tearing through the capsule, or into the rectum when the finger is used and one can tell just what one is doing. There is almost always a line of natural cleavage at the line of the junction of the enlarged lobes with the bladder and urethral floors, along which the finger tip easily makes an opening through the mucous membrane, and allows it to reach the gland itself, and begin the enucleation. (2) I cannot see the advantage to be gained from removing the gland from the urethra, in any operation which also includes, as does Alexander's, a suprapubic incision of the bladder. If the bladder has been opened above the symphysis it is far easier in my belief to enucleate or to do any other method of removal from within the bladder than it is from the urethra. The urethral opening, is used of course, while doing the former as a road by which to aid in the removal from the bladder, and secure more efficient drainage afterwards. (3) I believe it to be very important to avoid tearing the capsule and thereby risking injury to the prostatic plexus of veins. I do not happen to have had a serious hemorrhage in any but one case of prostatectomy, and that arose from the above source. I have never seen any hemorrhage of consequence come from the veins of the inner aspect of the neck of the bladder which Dr. Bryson speaks of as being liable to occur. (4) I do not think the cystoscope is of much value in these cases. It is difficult to pass, sometimes impossible. It informs us only of the size and form of the intravesical projections, and tells

nothing of the extent of the enlargements in other directions, which are the larger portions of them and the more important often.

I have been rather surprised to hear a number of surgeons speak of the cause of death after the radical prostatic operations as if they did not understand its nature and then describe a condition which is as clear as any clinical picture is of renal insufficiency. Renal insufficiency is the cause of death, I believe, in the majority of these cases after operation. It has been so in by far the largest part of those of which I have had the opportunity to have personal knowledge. Septic infection is responsible for most of the remainder and, in the majority, pulmonary embolism figures rather notably.

With regard to Bottini's operation and its various modifications the criticism I have made has been directed chiefly to the failure by some of those who advocate it most unreservedly, to recognize and admit that there are many cases to which it is not applicable, and that its appropriate field is in those in which there are symmetrical unilateral or bilateral enlargements only, or a median lobe hypertrophy of moderate size or a bar at the neck of the bladder.

Limited to such cases as these it is doubtless capable of giving good results both immediate and, so far as we may judge, in many cases remote as well. Its defect is that it does not remove the gland, if that is a defect. I cannot say that this is an established fact, however. Bottini's is not, as some would have us believe, an operation without danger. It is growing in popularity at this time, and must be recognized as a method that should have a more extended trial by all of us, when the conditions are appropriate.

DR. GEORGE CHISMORE, of San Francisco.—I feel some modesty in taking the attention of this society in the discussion of this topic because I have occupied such a conservative position with regard to it. During the course of thirty years I have seen many surgical procedures advocated for the relief of this condition and, for the most part, they have been disappointing in their results. But of late, it seems to me, we are reaching a point wherein I shall have to change my views upon this subject entirely, and that the whole surgical world is headed in the right direction, *i.e.*, perineal prostatectomy.

Hitherto, by proper selection of catheters and their use with regularity, always emptying the bladder with the instrument when there is call to micturate, I have been able to offer a fair share of relief to those applying to me for the troubles resulting from senile hypertrophy of the prostate gland, but, at best, the catheter life is a life of slavery.

I have had the opportunity of observing the after results of many cases of surgical interference with senile hypertrophy, but until lately they have been disappointing. I have seen some cases of combined suprapubic and perineal prostatectomy, notably such cases as Dr. Fuller referred to where all was gained that could be anticipated.

And I have had an opportunity of observing eight cases of perineal prostatectomy performed by Dr. Goodfellow, of San Francisco, who employs a very simple method. The only instruments he uses are a scalpel, a staff and vulsella forceps. His mode of operating is as follows: He places his patient on his back with the thighs strongly flexed upon the chest; upon this position he places much importance; he simply makes a perineal median incision, introduces the staff, opens the urethra and then, with the finger, proceeds with the greatest ease to enucleate lobe after lobe of the prostate. I do not think that more than twenty minutes were taken in the actual process of enucleation and, in each case,

he removed the prostate entirely. In one case, in which I was permitted to introduce my finger, I found the characteristic inter-ureteral bar, the size of a chestnut. After loosening the prostate he made pressure from above upon the prostate and, with the volsella and the finger, he enucleated the entire prostate with the greatest ease, peeling out the inter-ureteral bar as well. All of these eight cases were bad ones, occurring in old men, two being above eighty years of age, and there were but two deaths. In one of these eight cases, a man who had been under my care for years there was a small encysted stone which I had never been able to remove. After the removal of the prostate an attempt was made to remove the stone by the perineal incision but it failed; he then made a suprapubic incision and with much difficulty took out a stone that was not larger than a filbert. It was firmly encysted. This patient died 17 days after from the effects of infection of the abdominal wound. The post-mortem revealed the prostatic urethra nearly well. The prostatic operation had nothing to do with the man's death. In the other case, a man above eighty years of age, had an opening made into the rectum during the operation and he lived thirty days. The post-mortem revealed the wound to be closed but the patient had an abscess of the gall-bladder. All the other of the eight cases recovered. I have had under observation two cases, one of whom was operated upon ten years ago, and the other seven years ago. In the first case the man stated that up to the time of the enucleation of his prostate he had been in miserable health for many years; after the operation he recovered entirely and regained his health. Upon examining this patient there was found, *per rectum*, a growth thought to be malignant, occupying the site of the removed prostate. An operation was advised immediately, the perineum was opened and, in place of a malignant growth, there was found a large collection of small uric acid crystals at a point where the urethral floor had been destroyed; one ounce of these crystals was scroped out. He made an uninterrupted recovery.

Dr. Goodfellow was in the habit of passing a large straight sound through the perineal cut and also washing out the bladder daily; subsequently he dropped that plan entirely. Now, after enucleation of the prostate, in two or three days, he permits the man to be up and about the ward. Urination via the penis begins about the fourth day and the patient is soon well. In another patient upon whom he operated four months ago the patient urinates every eight hours during the day and but two or three times at night.

I think the time will come, and very soon, when we can say to a patient that the prostate, in such conditions, can be removed with great benefit.

DR. CHARLES H. CHETWOOD, of New York.—I have but little to add to the discussion. Prostatotomy is a classical operation first performed by Mercier through the urethra. The occurrence of severe hemorrhages in some cases lead to the introduction of the Bottini operation. Perineal prostatotomy is an evolution of the Mercier operation, as is the Bottini technique, and perineal galvano-prostatomy is an evolution of both kinds of operation. I do not think that it is an operation applicable to all cases, but the cases related by Dr. Wishard and myself bear good testimony as to its worth in many instances. I cannot help but feel that future experience, better technique, and a better appreciation of what can be done with the galvano-cautery will lead to the more extensive use of the cautery operation through the perineum. Among the advantages of this method are rapidity and despatch in operating and, also, the drainage that is instituted. Any instrument which complicates the operation and which prolongs

it is rather undesirable. The instrument of Dr. Wishard is ingenious but rather unwieldy. Little advantage is to be obtained from a cystoscopic view of the prostate while operating; digital investigation is far better.

Dr. John P. Bryson, of St. Louis, expressed gratification with the thorough presentation of the subject of prostatic surgery; and was particularly interested in the presentation by Dr. Chetwood of the galvano-caustic prostatotomy. He remarked, that we were now operating with more confidence even in those cases presenting stigmata of senility with arterio-sclerosis. Prostatectomy should always be considered a capital operation, and one not to be lightly undertaken. The post-mortem findings, presented by Drs. Morton and Gibson were especially interesting, because they were actual demonstrations of what might be accomplished by galvano-caustic prostatotomy and perineal prostatectomy. He was surprised to hear it remarked, that the pathological changes in the bladder, in association with prostato-megaly, had not been sufficiently dwelt upon in his paper, since he had devoted several pages to the discussion of this subject.

He did not know whether he understood Dr. Watson in regard to the influence of intra-vesical prostatic projections. He had expected to be criticized when he expressed the belief, that intra-vesical projections do not, in his observation, produce urinary obstruction to the degree heretofore believed. In one of the cases reported by him a projection, passing beneath the vesico-urethral ring and jutting into the bladder, had been removed without benefit to the patient, who was subsequently cured by an epicystotomy and drainage. He believed the epicystostomy should, in these cases, precede the perineal enucleation, and he had declined to do prostatectomy on some patients, who had refused to submit to the preliminary operation. The drainage that follows on epicystostomy is better than that which follows the perineal incision.

He agreed with Dr. Fuller, that prolonged drainage by the perineum could not always be done on account of the irritation about the vesical neck, producing cramps, requiring the withdrawal of the drainage tube, or the use of large doses of morphin. In some of his cases he had removed the perineal drain as early as six hours after its introduction, because of the vesical tenesmus. His experience accorded with that of Dr. Watson in regard to the use of instruments—a knife, a grooved staff, a Politzer's bag with a catheter, a blunt instrument for puncturing, are all he now requires; the enucleating finger being the chief instrument. Even in the case of fibrous prostates there is no difficulty in shelling out with the finger and delivering through the perineal wound. He did not believe that many of these overgrowths are separately encapsulated, but that they all begin as adeno-hypertrophy with subsequent fibrous development. It is not difficult to remove this fibrous tissue, and yet keep within the outer rim of the prostate. By doing this the dangers of sepsis, septic phlebitis, embolism, etc., are best avoided.

His work seemed to demonstrate that the real urinary obstruction is nearly always found in the anterior part of the prostatic urethra. He did not see how is was possible to press the vesical outlet to within reach of the enucleating finger without first removing some of the anterior portion of the hypertrophied gland-tissue; but he emphasized the fact, that when enucleating from below, the vesical outlet often sunk down to within reach of the finger in the perineum, without supravesical pressure, and for this reason, as he had stated in his paper, he always deferred incision into the supravesical space until the latter part of the operation.

Presentation of Specimens and Models of Hypertrophied Prostates and Their Bearing on the Operative Treatment of that Condition.—By DR. BRANSFORD LEWIS, of St. Louis. See page 293, July, 1902.

DISCUSSION.

DR. FREDERIC R. STURGIS, of New York.—The reading of Dr. Lewis' paper offers me an opportunity for suggesting that it is well to remember the importance of the prostate gland in its relation to the propagation of the human species, and that its absence, either by accident or operation, may tend to render a man sterile. The prostatic secretion has been found to be essential for the vitality of the spermatozoa for, without this prostatic secretion, the semen is no longer fruitful; the removal of the prostate and the ejaculatory ducts would, therefore, interfere with the normal secretion of the parts. Many experiments have been made which show that, in a large proportion of cases where the prostate for purposes of experiment has been removed, efforts to impregnate the female were fruitless. I, myself, emphatically protest against this wholesale removal of the prostate, and I think that in the future we shall regard our present surgical action much in the same light that the wholesale removals of uteri and ovaries of former days are at present regarded. We should, therefore, endeavor as far as possible to preserve the prostate and, if necessary, to perform an operation, not to make it radical, but partial, and perhaps the Bottini operation would, in many cases, be a good substitute for removal.

DR. EUGENE FULLER, of New York.—The models shown by Dr. Lewis are certainly very interesting and do the author much credit, but I do not think one could really show the different forms of prostatic hypertrophies in any one hundred such models. If you have 100 cases for prostatectomy certainly 75 per cent. of them will present something new. Some hypertrophies are very grotesque; I remember one in which the entire obstruction was due to a prostatic finger which grew out from the back of the upper part of the prostate, fell down over the bladder neck, and so was sucked into the urethral outlet as to occasion retention. No difficulty was experienced in passing a catheter in this instance, and no evidences of any hypertrophy could be obtained by rectal exploration. A great many other curious instances which have occurred in my experience could be enumerated.

Another point one might infer from the paper was that in operations for the relief of prostatic hypertrophy there is to be expected much doubt as to the improvement which may result. In my experience that need not be. I feel from my results warranted in the assurance of a good result barring the risk of mortality which is associated with the operation itself, the patient being able to urinate freely, and to completely empty the bladder, although he may not possibly at first have perfect control over the sphincter, the symptom of which is that on much exertion with a fairly full bladder he may lose a little urine.

I have in mind one case, an old man, whose prostate was in a condition of fatty degeneration and deliquescence. At the time of removal, I thought it might be cancerous. There were several cavities in it. He was 74 years old, with changes showing old age, such as the *arcus senilis*. Since the operation this patient has never been able to walk around without a dribbling of urine; yet at night he can hold it perfectly well. I do not remember another case where any marked degree of dribbling has persisted. All of the others have obtained good

control over their urine immediately after operation or at the latest within six months. I remember but one case who used the catheter after I had performed a prostatectomy. This patient had a tubercular abscess at the periphery of the prostate and, after the operation, perivesical suppuration of a tubercular nature occurred which had to be drained. After leaving the hospital the wound healed and the bladder was so bound down by a pericystitis that it could not contract sufficiently to expel its contents. The man lived two years after the operation.

Dr. Lewis referred to one case where an operator instead of attempting to relieve a vesical tenesmus due to prostatic obstruction which had caused a hernia operated upon the hernia. In this instance if vesical drainage had been established the hernia would, in all probability, have ceased to give trouble while no good and probably bad would result from operating on the hernia and leaving the cause for it. Such was the result in the case mentioned. The same reasoning applies to rectal prolapse and hemorrhoids similarly caused.

DR. F. TILDEN BROWN.—Three things suggest themselves to me in connection with Dr. Lewis' paper. In the first place he has assembled a most instructive collection of speciments of the various prostatic hypertrophies. In the second place he has done great service in showing that no one method is always the best when attempting to rid patients of such obstructions. In the third place he has failed to show us *how* to know in advance just which one of these forms of annoyance we have to deal with. It is easy to suggest that we should learn more about the nature of these obstructions before we approach them surgically, yet it is another thing to gain accurate knowledge upon this point. As said by Dr. Watson the use of instruments is often unsatisfactory; it is unnecessary to state *why* before this audience. In thirty per cent. of the cases cystoscopy is disappointing. Again, when we hope to determine the best way to handle these cases it is most important to know what sort of kidneys the individual possesses as well as what sort of obstruction the bladder is embarrassed with. The opportunity of gaining direct evidence by examination of the urine as passed voluntarily, is not very accurate. In a marked cystitis there may be a deal of albumin, and while the presence of casts tells a good deal, some faulty kidneys do not manifest interstitial nephritis and pathological conditions by the shedding of casts. If it is difficult to learn the nature of the prostatic obstruction by the cystoscope it is doubly difficult—practically impossible—to secure the separate urines by ureteral catheterization in the usual way. It occurs to me that where there is good excuse for doing a suprapublic incision to meet some emergency, this should be made use of, at the same time or subsequently, for the introduction of the cystoscope with which to look down directly upon the nature of the prostatic hypertrophy, or new growth. Moreover, if the conditions are favorable by air or water distention, one may introduce the ureteral catheters and get the urine from each kidney. I have recently had an opportunity to examine two cases of enlarged prostate through the suprapubic opening and to learn a great deal about the conditions present, conditions about which I would have been unable to inform myself by the introduction of the cystoscope through the urethra. In one case the enlargement was pear-shaped, the urethral catheter entered the bladder with ease and was seen to protrude at the apex of the pyramid, just as if it were the stem of the fruit. The cystoscope looked down upon and well beneath the tumor, revealing its exact relationship to the bladder beneath walls and neck. Why retention had been complete before epicystotomy it was easy to appreciate. In any position of the patient the urethro-vesical

aperture was well above a four or five ounce water-line, and by the time enough urine had accumulated to reach the opening, expulsive efforts upon this fluid collar surrounding the pyramidal tumor must have tended only more to close its outlet and lumen.

DR. J. P. BRYSON, of St. Louis.—In one of the specimens shown by Dr. Lewis, the one with the small projection jutting into the bladder from above the urethral outlet, he thought a microscopic examination would be required to differentiate between a hypertrophy and some other form of growth. This specimen alone would indicate the impossibility of laying down hard and fast rules as to how one should proceed in prostatectomy. He had been able in two cases to demonstrate that the entire prostatic overgrowth was from the superior aspect of the urethra and that it pushed the bladder down close to the rectum. In attempting to reach this the peritoneum was opened and the suprapubic operation had to be abandoned. He had seen nothing similar to the specimen presented by Dr. Lewis. It was conceivable that extensive hypertrophic growths anterior to the urethra were due to a congenital anomalous course of the urethra passing through the lower part of the prostate leaving the gland structure chiefly above instead of below and laterrally. His cases resembled a remarkable instance, figured by Quain in 1872, and refigured and presented before this Association by the late Dr. Stein in 1874. In none of the post-mortem specimens presented here, did he think that pedunculation was so great as to render impossible their removal by the perineal route, or make necessary an epicystotomy. He considered the question of urinary obstruction by an intravesical growth as being of the highest importance. He had opened suprapubically 64 bladders in prostatics,—if he included some that had been opened subsequent to a perineal prostatectomy, the number would be 68,—but in none of these cases had he ever been able to convince himself that he had to deal with a growth that would act as a ball-valve. So far as he could observe there was no urinary obstruction in these cases; since in all of them he could pass his finger through the vesico-urethral ring well down into the prostate.

The two cases cited here by Dr. Lewis confirmed this opinion. In those cases of intravesical projection *en collerette* he did not know how much the Bottini operation could accomplish. In one of the cases cited, when the bladder was opened above, the finger passed easily into a *bas fond* and from this could be pushed through an opening, a round hole, in the posterior part of the projection as far as the second joint. This appeared to be the urethral outlet, but it was not so; for on withdrawing the finger and passing it down the anterior vesical wall, it entered the true urethral outlet, which was in reality gaping sufficiently to permit the finger to pass well down into the prostatic urethra without distention, the opening in the *en collerette* projection would easily admit a lead pencil. It seemed to him that the boring of the hole through the intravesical projection entirely removed any urinary obstruction, for the flow through it was easy. He has been unable in any of these cases, even by the use of considerable force, to double down this intravesical projection in such a way as to occlude the outlet; so that he has been forced to the conclusion that these intravesical projections do not offer so much a urinary as a circulatory obstruction, and that we find the real urinary obstruction further down the urethra.

In the second case shown by Dr. Lewis there is a nipple-like projection from the anterior as well as the posterior part of the vesical outlet, in the center of which is the opening to the urethra. He could not see how, when the entire

prostate was removed such a condition should be left; though there are doubtless many surprises awaiting us; and it was equally difficult to see how the electro-cautery incision through this failed to relieve the urinary obstruction. But since the picture has been made from a clay model, representing the impressions gained during the course of an operation, the *personal factor* may have entered to a considerable degree. He was sure Dr. Lewis would not object to this criticism, especially after he had himself brought the question of the personal factor so prominently forward in his own paper.

But even without this it still remained a question in his mind whether that projection prevented the patient passing the urine as much as the condition of the bladder prior to the prostatectomy. This patient has been "eight years in catheter-life" and epicystostomy with subsequent drainage may have had more to do with relieving the vesical atony than the removal of this projection, as had been shown in one of the cases reported by him. Therefore he was quite convinced that it was the removal of the projection which cured the patient.

DR. EDWARD MARTIN, of Philadelphia.—I have noted with amazed delight the cheery willingness with which my colleagues remove prostates, and have experienced a sense of unworthiness at my own idleness in the field where they have been so busy. It is with shame that I confess to an experience of not more than six cases, all of whom recovered from the operation and were relieved from their symptoms. This limited experience leads me to believe that the operation of prostatectomy at times is difficult, bloody and dangerous, and should be employed only when the catheter has failed to give relief completely. It seems, however, that such a conception savors of old-time surgery, and that from the period when a patient begins losing his parabolic curve the modern surgeon should whet his knife.

I believe with Dr. Lewis that there are various ways of treating an obstruction due to prostatic enlargement, and that Bottini's galvano-cautery may be, in selected cases, the safest and easiest method of accomplishing a cure.

In quiet old Philadelphia some of us still perform vasectomy, at times with results quite equal to those obtained by the most radical removal of the prostate gland. In cases characterized by violent vesical tenesmus, with difficulty and pain in passing the catheter, accompanied by all the symptoms of acute cystitis, which resists continuous drainage and irrigation, I have learned to suspect the presence of a stone, and have usually been enabled to find it, though this may be most difficult. The crushing and washing out of the stone has, under such circumstances, produced a comparative cure.

I know a number of men passed middle life who are vigorous, able-bodied, and filling useful positions in life, who depend entirely upon the catheter, and whose kidneys remain uninfected, and who are all likely to die of causes other than those connected with, either directly or remotely, their prostatic obstruction. I know of others whose prostates decorate the shelves of their physicians, with their kidneys and bladders on the same shelf. I believe that the operation of prostatectomy is life-saving, and is even imperative.

DR. HUGH H. YOUNG, of Baltimore, Md.—Dr. Lewis's specimens and models are beautiful and very instructive. I have met, however, several forms of prostatic obstruction which are not shown in his collection. One case, in which no enlargement could be found by rectal and cystoscopic examination, was found by epicystotomy to have a small globular tumor of the verumontanum which was causing the obstruction. I have had several cases of so-called small sclerotic

prostate which also showed by rectal and cystoscopic examination very little evidence of hypertrophy and on which a prostatectomy would be impossible, that were cured by the Bottini. In four cases which had been previously castrated I found with the cystoscope a collerette of mucous membrane and fibrous tissue around the prostatic orifice which continued to cause the obstruction after the lateral lobes had atrophied. These were also relieved by the very small blade of my cautery-incisor.

I wish to reassert my adherence to the radical removal by prostatectomy in fit subjects. I have used both the perineal and suprapubic routes, with one death in fourteen cases. Many of my cases, however, have been so old that I have been afraid of these radical operations and general anesthesia, and I have found that the Bottini operation eminently satisfactory for these cases, and much less dangerous. I have had 19 cases over 70 years of age and 3 over 80 operated upon under cocaine with electro-cautery without a death and with excellent results.

DR. FREDERIC R. STURGIS, of New York.—With regard to the tumor of the verumontanum the endoscope would have shown what the cystoscope failed to show, and have obviated the necessity of the suprapubic cystotomy.

DR. J. P. BRYSON, of St. Louis, had seen three or four such cases manifesting hypertrophy of the verumontanum. In one case he had done an epicystotomy and had found the hypertrophied verumontanum tuberculous and had curetted it away with a satisfactory result.

He would like to say once more in reference to certain remarks that he did not know anybody who was doing prostatectomy as a routine measure; he certainly did not.

One of the speciments shown by Dr. Lewis presented, what to him seemed an inadequate incision, and yet the patient showed signs of marked improvement after the Bottini operation. In this connection he would like to call attention to the advantages gained in old men from the deep instillation of nitrate of silver, stimulating the contractile power of the detrusor. He had seen a number of cases who have gained by this treatment in general health and power to empty the bladder. But when the treatment ceased the atony and the residual gradually returned. He was inclined to attribute some at least of the improvement in those cases, where the Bottini operation was done, to the stimulation of the vesico-urethral outlet.

DR. WILLIAM T. BELFIELD, of Chicago.—It is my belief that the rational solution of the problems arising from prostatic enlargement must come through a study of the etiology of this condition, rather than of the anatomy of the enlargement itself. We pay, perhaps, too much attention to a study of the manifold contours of individual prostates, and too little to the reasons for partial or complete retention. There is evidently another factor in the case than the mere prostatic enlargement; for we know that the removal of the mechanical impediments in the urinary channel, does not always restore the power of urination. The removal of both testicles has repeatedly caused complete atrophy of the enlarged prostate without restoring voluntary urination; moreover, the conditions so commonly caused by prostatic enlargement—"prostatism"—has been repeatedly recognized without any enlargement of the prostate, even in youths under twenty years of age; I reported such a case ten years ago, and others have been since described by Fuller and by Chetwood, under the designation "contractures" of the bladder neck. I have seen the same condition in women also. There can be no doubt that this condition—which exists in women, in young men, and in

older men where prostates have been removed by castration or prostatectomy—is frequently associated with, but not distinguished from, prostatic enlargement; we are accustomed, erroneously, I believe, to ascribe the familiar urinary retention solely to the prostatic impediment. Every operation for the relief of prostatic enlargement should reckon with this degeneration or "contracture" of the vesical outlet quite as certainly as with the tumor formation in the prostate. When the haphazard Bottini operation succeeds, its success is due to the institution of a "low-level" channel through the vesical outlet, and the apparent success of the perineal prostatectomy is probably due to the destruction of the rigid vesical outlet rather than to the removal of prostatic tissue.

Dr. Bryson has very wisely emphasized the importance of restoring the vascular equilibrium in the prostate and bladder. I would call attention to the necessity for overcoming the rigidity of the vesical fibres encircling the outlet, in addition to removing the prostatic overgrowth.

As to the etiology of prostatic enlargement we can as yet only speculate. My own impression is that this enlargement is entirely due to a perversion of the testicular secretion. The prostate is primarily and essentially a sexual gland, in many of the lower animals it has no relation, even of contact, with the bladder. Its glandular structure undergoes prompt and certain atrophy when the normal testicles are removed, showing that it has no function except that imposed upon it by the internal secretion of the testicle. It seems, therefore, reasonable to assume that the hypertrophy of its glandular elements (and this is the first step in the prostatic enlargement) is prompted by perversion of the secretion of the testicle.

DR. BRANSFORD LEWIS, of St. Louis.—I wish the gentlemen present would understand my purpose in presenting my paper; it was not to push anything of my own in the way of operating, but it was to promote a more broad-gauged way of viewing prostatic surgery. Nine out of ten men will ask the specialist "What operation do you prefer for prostatic hypertrophy?" These specimens show that no one operation is applicable to every case. If there is a vascular interference which produced a urinary obstruction, as suggested by Dr. Bryson, that is simply a further proof of the correctness of my position. Dr. Belfield's suggestion that there are other causes besides contraction, or fibrous degeneration, etc., is a further proof, and no contradiction to my position.

I wish to take issue with Dr. Bryson on one point with reference to his claim that intravesical projections do not produce obstruction. I look upon this thing as I do on the old adage, that the proof of the pudding is in the eating thereof. In one instance after prostatectomy had been done by him there was complete retention from January to December; after that I removed an intravesical projection which gave relief and cured the case. Hence I am a believer in the obstruction from intravesical projections. Often the only thing necessary to do is to relieve the collar and drain.

In the other case where I did a Bottini and failed to obtain good results and where Dr. Graves succeeded by the suprapubic removal, that I think is another demonstration of my position, for I should have done, not the Bottini, but the suprapubic removal. The case was one of pedunculated outgrowth that the incision only bisected and did not remove.

I want to say that Dr. Belfield's allusion to the Bottini operation being a mere scratch is an injustice. I have seen cases in which the Bottini incision was so deep as to do away with the retentive power of the bladder. I saw an

instance in Berlin last year in which a Bottini was done so successfully that the patient was compelled to wear a urinal afterwards.

Detection of Stone in the Kidney by Skiagraph.—DR. JAMES BELL, of Montreal, showed photographs of a case in which the skiagraph had demonstrated a stone with perfect satisfaction. The patient was rather a slight, poorly nourished woman, 42 years old. She had her attack of colic when she was four months pregnant in 1897. She remained well until 1900, when, being three months pregnant, she had another attack. She then remained well until 1901, when she had other attacks occurring on the right side. She had observed no change in the urine, but she declared that she had noticed some swelling on that side with each previous attack. After admission to the hospital, skiagraphs were taken which showed a small oval stone in the lower half of the kidney which was removed by the loin incision, and it was shown to be of the size and shape as depicted in the skiagraph.

DISCUSSION.

DR. F. TILDEN BROWN, of New York.—This is of growing importance in the surgical diagnosis of suspected cases of stone in the ureter, and we are all having additional evidences as to its value. I have no hesitancy in attaching a great deal of confidence to the X-ray pictures when they are taken by such a man as Dr. A. B. Johnson, one or two of whose pictures I have had the opportunity of showing this Association. An interesting case which had one or two features connected with it which were entirely novel to me might be mentioned. The patient was a physician about 65 years old who was referred to me with symptoms referable to the prostate. He had been tormented for months with a sense of formication and boring in the rectum and posterior urethra due, as he thought, to being of a very neurotic temperament and youthful indiscretions. He was under my observation for all of a year at different times. Massage of the prostate would at first bring out collections of brown or yellowish-white corpora amylacea which relieved him; at other times the injection of hot water into the rectum, together with straining efforts, which expressed some of the contents of the seminal vesicles, would relieve him temporarily. He could not sit down unless he sat on cushions which he carried in the tail pockets of his coat. When he returned from a long summer vacation he was in much better shape, but two or three weeks in town brought him back to his former condition. The patient said that he felt sure that he had a calculus in the ejaculatory ducts, or the prostate, and he wanted to know if the X-ray would not show if such was the case. I thought there was litte chance of it, but asked Dr. Johnson to make the attempt, the result was this picture which shows a small calculus in the right ureter, presumably not more than three-quarters of an inch from its opening into the bladder and another ureteral calculus on the left side, three inches or more from the outlet. The probability of such a condition had never occurred to me, although the man had always had an over acid urine and not infrequently uric acid crystals. After this picture was taken I attempted ineffectually to introduce my finger high enough to get pressure upon the right ureter, where the lower calculus seemed lodged. Later I had an instrument made like a much curved vesical compressor and with which to avoid touching the sensitive prostate, at the same time just behind it to identify a very tender spot referable to the ureter If this were ascertained then to attempt dislodg-

ment of the calculus by the same means. When I touched the spot indicated in the radiograph the patient complained of pain. Dr. Johnson was unwilling ot attach much importance to the first picture and asked for a second sitting by which he verified this picture. I mention the case because of the unusual features of a calculus in each ureter without giving rise to obstruction or any of the general reflex symptoms. No operation has been performed.

DR. J. P. BRYSON, of St. Louis, called attention to the subjective symptomatology. Three years ago he had read a paper referring to the influence of irritations in the lower third of the ureter. He thought there was an anatomical basis for the subjective symptomatology. The longitudinal fibres of the ureter, running down, spreading out and terminating at the vesical outlet, mingle with the muscular fibres of the trigonum. The lower part of the ureter is supplied with blood from the inferior vesical artery, which passes down and supplies also this portion of the bladder with blood. The nerves presumably accompany these vessels. If that be the case he could see an explanation of the pain about the prostate and in the trigonum alongside and above the seminal vesicles.

DR. CHARLES H. CHETWOOD, of New York.—Apropos of what has been said I should like to refer to a case of Dr. Keyes. A gentleman of advanced age who had symptoms of frequency and urgency of urination, and had been treated for months for bladder trouble, came to him for advice. The fact that the prostate was flat and not enlarged *per rectum*, that there was practically no residual urine and there existed evidence of pyelonephritis, suggested to Dr. Keyes that the symptoms might be reflex from the kidney. An X-ray picture was taken by Dr. Alexander Johnson, which located a stone in the lower portion of the renal pelvis; which was corroberated by operation. Shortly after the operation the urinary symptoms had greatly subsided.

DR. BRANSFORD LEWIS, of St. Louis.—I wish to show a specimen of a calculus in the ureter. The case was one of general lithiasis in which there was a stone in both kidneys and in the left ureter. One interesting feature about the case was that the cystoscope showed the urine coming from both ureteral openings, notwithstanding the fact that this left ureter appears to have been filled with the calculus.

DR. F. TILDEN BROWN, of New York.—It did occur to me, and there is still much doubt in the mind of the surgeon who is his regular attendant, that the shadow is that of a ureteral calculus. It was thought at first that it might be a phlebolith in a vessel of the vesical plexus. The difficulty of differentiating by radiograph between a concretion in the seminal vesical, the prostate, the lower ureter, or one of the veins beneath the bladder is very great. It is difficult to say exactly what relation each should bear to the bones, anterior and posterior to the shadows. In this case I would say that if the patient had been a suitable subject for ureteral catheterization it would have been easy to determine before now whether this shadow was a ureteral calculus or not. I have already urged if he does not respond to medicinal treatment, that before any operation is made, that I may be allowed to use a general anesthetic and pass the ureteral catheter into each ureter to ascertain the exact locations of the concretions and, if they exist, at the same time, to inject some lubricant like sterile oil in order to distend and overcome, if possible, the contraction of the ureter and the lower ureter, while the capped catheter will draw back the urine until additional distention and sufficient pressure has accumulated to justify the hope that upon withdrawal of the catheter the calculus may be expelled.

Even if this did not happen we would be in a position to know what surgery should or should not attempt to remedy.

DR. CHARLES H. CHETWOOD, of New York.—I should like to ask the personal experiences of those present in those cases in which the stone was purely uric acid. It has been stated that such a stone could not be shown by the X-rays.

DR. WILLIAM T. BELFIELD, of Chicago.—In reference to calculi in the ureters I might refer to a patient of my own who was also seen by Dr. Martin and Dr. Guiteras. The symptoms were those of an extremely severe infection of the prostate and bladder; the cystoscope showed no stone or other cause for the infection. He had suffered a great many weeks and had taken a great deal of morphine. Dr. Martin had Dr. Leonard take a skiagraph which revealed calculi in the ureter. This patient came to Chicago bringing the picture with him, and asked me about the wisdom of performing an operation. I suggested that he take glycerine, a teaspoonful four times daily. Five days later he came to my office and said that the pain was almost gone and that something had happened. The pain formerly felt in the prostate and rectum was now in the glans penis. The cystoscope revealed calculous débris which I removed through a perineal opening. When seen some months later he had remained entirely well.

DR. J. P. BRYSON, of St. Louis, remembered a patient, the subject of a pretty general lithiasis, who had a pure uric acid calculus. The urine was perfectly normal, when a stone blocked one ureter. Two skiagraphs were taken which showed nothing. Within one week a pure acid calculus passed which was of the size of a bean.

SECOND DAY, APRIL 30, 1902.

The morning session was devoted to a General Discussion on the Surgical Treatment of Genito-Urinary Tuberculosis.

Renal Tuberculosis.—DR. F. TILDEN BROWN, of New York, opened the general discussion on this topic and said that the results of necropsies were at variance with the clinical showings in the disease, as a rule, and that if we relied upon the evidence as produced at autopsies, we would be convinced that there were but few cases of isolated renal tuberculosis which justified surgical intervention. He thought that a contribution from the hospital records extending over a period of ten years, would be of value, although the statistics were incomplete. At the Presbyterian Hospital, New York, from February, 1892, to March, 1902, there were 1427 necropsies, of which number 258 (18 per cent.) showed tuberculosis lesions somewhere in the body and 48 of them (18.5 per cent.) showed renal tuberculosis. Of these 48 cases, 32 occurred in males and 16 in females. Of the 48 cases, 39 had tuberculous lesions in both kidneys, while but nine had tuberculosis of one kidney. Of these nine cases, 5 involved the right, and 4 the left kidney. Of the 258 tuberculous bodies it was shown that the kidneys were more commonly involved than the spleen, liver or adrenals. During the same time there were in the hospital 78 cases diagnosed as renal tuberculosis, if the authorities be given the credit of making such a diagnosis of 48 cases where the kidneys were found to be involved in tuberculous lesions at autopsy. Of these 78 cases, 13 had nephrectomy performed, with one death occurring two months after the operation; at the autopsy the other kidney was found to be far advanced in the disease. That gave a mortality rate of 7.6 per cent. Of these 13 cases, 6 fell into the speaker's hands; he had no deaths. The vast majority of cases that

come to autopsy which show tuberculous lesions of the kidney were of the disseminated miliary type, and with such a class of cases, of course, the surgeons have nothing to do with. At the present time we are sure that there is no form of medicinal, hygienic or climatic treatment that is at all curative in renal tuberculosis. The evidence at necropsies show as high as 3 or 4 per cent. of healed cases of pulmonary tuberculosis; whereas, it is the rarest occurrence to find at autopsy any evidence of healed renal tuberculosis. The speaker then showed photographs of Nature's efforts in the attempt to cure renal tuberculosis. From a surgical standpoint he was satisfied that no surgeon to-day would hesitate to perform an immediate nephrectomy when he was sure that one kidney contained the only appreciable focus of the tuberculosis. Through the courtesy of his colleague, Dr. Tuttle, he was able to show a picture of a case of pseudo-tuberculosis of the kidney, a very rare condition, which was first described in 1891.

Tuberculosis of the Seminal Tract.—HUGH H. YOUNG, M.D., of Baltimore, read a paper on this subject.*

Demonstration of Two Cases of Genito-Urinary Tuberculosis. —PAUL THORNDIKE M.D., of Boston.

GENTLEMEN: Here are two specimens of great interest in connection with the modes of invasion of the tubercle bacillus into the urogenital tract. I am able to show them through the courtesy of Dr. L. R. G. Crandon, of Boston, who recently prepared and demonstrated them. I quote from Dr. Crandon: "Case 1. This is the case of a man 67 years of age who had the obstructive symptoms of enlarged prostate and died, after a time, of an intercurrent affection. At the autopsy no tuberculous deposit was found in the body throughout or in the urogenital system, except in one lobe of the prostate, where there is a single, large, round, caseous mass surrounded by typical tuberculous tissue. The enlargement of the prostate in this case is of the usual type and is not due to tuberculosis. Epididymis, vas deferens, seminal vesicle, ejaculatory duct, bladder, ureter, and kidney on both sides showed no tuberculosis. In this case the deposit in the prostate was not alone the only manifestation of tuberculosis in the urogenital system but also the only one in the body."

Specimen shown.

"Case 2. The case from which this specimen was taken was one of well marked Addison's disease that had also prostatic symptoms, namely, pain, enlargement, and obstruction, all of which came on only in the last few months of life, giving clinical grounds for the presumption that the disease of the adrenals preceded that of the urogenital system. Examination after death shows well marked, old tuberculosis of the left adrenal, but no disease of the right adrenal, or of either kidney. The left seminal vesicle is dilated and filled with caseous material, and its walls tuberculous, while the prostate is infected throughout, the processes, however, being older and more extensive on the left side. The epididymis and testis on both sides are normal. The left ureter about 3 c.m. from the bladder is dilated and has cheesy, tuberculous walls, but microscopic examination from 5 m.m. along the left vas deferens, particularly the portion near the ureter, shows no infection. In this case the fact is clear that the ureter on the same side as the diseased adrenal has been infected through

*Will be published.

its mucous lining by the tubercle bacillus carried there presumably by the urine secreted by the kidney, the adrenal of which is tuberculous."

Specimen shown.

Tuberculosis of Testicle—Resume of Dr. Thorndike's Paper.—DR. PAUL THORNDIKE, of Boston, presented a short paper on tuberculosis of the testicle based upon 75 cases of the disease, collected from the surgical records of the Boston City Hospital.

Sixty-seven per cent. of these cases occurred between the ages of 20 to 40 years.

Sixty per cent. of these cases involved the left testis.

Thirty-six per cent. of these cases involved the right testis.

Eighteen per cent. of these cases involved both testes.

Gonorrhea had preceded the development of the disease in 30 per cent. of the cases, and trauma in 12 per cent.

The epididymis alone was involved in 42 cases.

The epididymis and testis were involved in 32 cases.

The vas deferens was palpably involved in 12 cases.

The seminal vesicles were palpably involved in 16 cases.

The prostate was palpably involved in 13 cases.

Dr. Thorndike's paper discussed two points: 1. The feasibility of removing the epididymis and leaving the testis behind, in proper cases; 2. the benefit to the patient of operations which remove only a part of the disease in cases where total eradication of the tuberculous process is impossible.

An Analysis of Ninty-six Operations for the Relief of Tuberculosis of the Testicle.—DR. ORVILLE HORWITZ, of Philadelphia, after recounting many cases, said that he seemed warranted in presenting the following conclusions:

(1) A primary tubercular infection of either the epididymis or testicle may occur, the former being by far the more common. (2) A primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one. (3) Primary involvement of either the epididymis or testicle usually takes place through the circulation; the soil being predisposed to the location of the tubercle bacillus, either by a slight traumatism, or by some infective condition which has given rise to inflammation of that organ, most commonly an attack of gonorrhea. (4) Secondary tubercular involvement of the epididymis or testicle sometimes follows a primary focus of the disease in other portions of the body, more commonly in those organs that are in a direct anatomical connection with the sexual glands, such as the seminal vesicles, prostate, urethra, bladder, ureter, or kidney. (5) The invasion of the testicle may be rapid, associated with acute inflammatory symptoms, an abscess soon developing; or the onset may be slow, the symptoms simulating those of either chronic syphilitic orchitis, or malignant disease of the organ. (6) The tuberculin test should always be employed in doubtful cases where only one focus of the disease is known to exist. (7) In doubtful cases, associated with hydrocele, the fluid should be examined for a tubercle bacilli, and inoculation experiments made. (8) The injections of either emulsions of iodoform or of sulphate of zinc into the diseased part are not to be recommended. (9) In all cases of encapsulated caseous nodules quiescent in the epididymis, epididymectomy should be performed. (10) Epididymectomy, together with resection of the vas deferens, is not attended by either atrophy of the testicle or sexual weakness. (11) The

drainage of tuberculous abscesses followed by the use of the curette, is only to be employed where radical treatment is not permissible, as it is attended with more or less danger and is generally unsatisfactory in its results. (12) In instances where the epididymis alone is involved, a resection of the diseased structure is all that is required, whether a partial or complete resection of the vas deferens is to be undertaken is still undetermined. (13) Double orchectomy should be performed when both glands are diseased, provided there is not extensive co-existing tubercular infection of other organs. (14) Whether infected seminal vesicles should be always removed at the time that the epididymis or testicle is resected is a question open for discussion, from the fact that in a large majority of cases the removal of the primary seat of the disease is followed by a subsidence of the tubercular involvement of the vesicles, it is deemed wiser, as a rule, to wait and remove the vesicles later if necessary. (15) Hygienic and climatic influence play as important parts after operation in fortifying the constitution against further invasion as they do in other tubercular conditions. (16) The antitubercular remedies are of great value in controlling the disease, and should always be employed in conjunction with whatever surgical procedure may be deemed necessary.

DR. J. P. BRYSON, of St. Louis.—It was very pleasing to hear Dr. Brown call attention to the fact that we are now willing to do nephrectomy in cases where the remaining kidney was under suspicion. It had been one of the surprises to find the remaining kidney make a marked improvement after the removal of its more diseased fellow. This takes place in other surgical diseases of the kidney, such as come about from infectious conditions and those produced by calculus in the substance of the gland or in its pelvis. A point of importance in connection with renal tuberculosis is the fact that the disease is unevenly distributed and is often not of a virulent type, and that portions of the organ are not affected at all, remaining capable of doing good eliminative work, so that it becomes a question, how much effective kidney substance we have remaining on a given side. In the matter of the medical therapeutics his observations are entirely in accord with those of Dr. Brown, that in tuberculous nephritis neither medication nor climatic treatment is of value.

Another point of importance is the question of a partial or a complete nephrectomy. In the beginning we were inclined to do only a partial nephrectomy, removing the diseased foci; but he believed that now practically all are united in the opinion that a total removal in such cases is the proper course to pursue even when the disease appeared to involve to a certain extent the organ which was to do the work for the body. On account of the peculiarity of the manifestations of tuberculous disease of the kidneys we cannot always come to a satisfactory conclusion as to the extent to which one kidney is diseased. The development of a fibro-lipomatous change is not uncommon in these cases and is of great interest. We remember that some years ago Dr. Adami of Montreal reported several cases where, on autopsy, atrophied kidneys were found in the centre of lipomatous tumors. Personally he thought such changes were not uncommon. He had seen two cases, one in his own practice, where these lipomatous changes had taken place to a marked degree, little of the kidney remaining imbedded in a mass of fat. In both of these cases there was no considerable development of fat throughout the body, and in both cases stone was found in the pelvis of the kidney.

In the cases of terminal renal tuberculosis operative intervention did not

seem encouraging. Most of the cases seen by him died of miliary tuberculosis within one or two years. Sometimes this general tuberculosis was of a fulminating type.

One form of tuberculosis, difficult and sometimes impossible of diagnosis and usually extremely fatal, which is apt to be mistaken for other diseases, is that where, according to pathologists, a very few bacilli are found, which apparently produce a very large amount of ptomaines. These make extensive diffuse swellings, great pain and polyuria and probably necrosis of the affected organ. This condition we see sometimes in the testicle. In one instance he incised the loin, split the capsule finding a high degree of intrarenal tension. Following this there was extensive sloughing with caseation of the organ. The patient died four years later of general miliary tuberculosis.

If he had been told five or six years ago of such lesions, as those described by Dr. Young he should have been surprised. That surprise is not so great now. Probably we shall find more of these cases. A few weeks ago he saw a case of tuberculosis of the vas deferens and seminal vesicles on the left side, thoroughly localized without any demonstrable involvement of the prostate or bladder, that he would have operated but for the fact that the patient had active pulmonary tuberculosis, contraindicating surgical intervention. The patient was sent to New Mexico for climatic treatment and reports decided improvement.

In regard to the manner of dissemination of the disease it did not seem to him that there was satisfactory evidence that tuberculosis traveled from the ampulla back to the testicle except by continuity. Observations in blenorrhagic inflammations of the vas deferens had shown that the micro-organism can be propagated down the vas without symptoms, finally developing an epididymitis. This, however, had not been shown in the case of tuberculosis. The physiological current is not continuous, and the bacilli have no power of independent motion. On the other hand, it has been clearly shown that in the great majority of cases the infection, even of closely associated organs, is through the blood vascular channels. Moreover, tuberculous foci have periods of activity and periods of repose almost to the extent of becoming obsolete, which makes it difficult to pronounce as to their relative duration in the body. So that it is not easy to determine which is a primary infection even in foci situated close to each other.

Dr. Young's method of utilizing the vas deferens both as a drainage tube and as an avenue for local medication was ingenious; and he believed it worthy of a trial. One most frequently observes that those tuberculous foci, which are drained by fistulous tracts get along better than those not drained at all; and he should put in practice Dr. Young's suggestion at the next opportunity.

DR. RAMON GUITERAS, of New York.—A patient was sent to me for operation with a supposed bubonocele. The operation revealed a tubercular abscess of the cord in the inguinal canal holding about one ounce of pus; it was evacuated, drained, and it healed. The patient had a tubercular epididymis.

Another patient was sent to me at the hospital for operation for a suppuration which discharged at the umbilicus. When I operated I found a sinus which ran down in the direction of the appendix and so thought I had to deal with some trouble with an appendiceal abscess from which the pus drained up between the peritoneum and the abdominal wall to discharge through the umbilicus. Therefore, I made an incision over the region of the appendix when I found that the suppurative area was localized lower down; continuing the

incision downward I found a large succulent typical tubercular cord with a pus cavity about it which drained up between the abdominal wall and discharged through the umbilicus when the patient was in the recumbent position. Shortly after operating upon the patient, he had an attack of hemiplegia and died a few days later.

DR. GEORGE CHISMORE, of San Francisco.—I am lost in admiration at the scientific character of the papers presented upon this subject to this Association. There has been a marked progress in the surgical measures which have been adopted for the relief of this complaint. Such papers should not go without discussion and, in order to give a wider latitude, I would like to submit a totally different view of the subject and give you the conclusions that I arrived at from an entirely different method of observation. Seventeen years ago I conceived the idea that perhaps tuberculosis of the genito-urinary tract might pursue the same course to an eventual recovery as is shown in some of the other localized tuberculosis in the body. Acting upon that opinion, such cases of tuberculosis of the genito-urinary tract as came under my observation from that time to this have been treated by strictly letting them alone locally, with one exception. In one case the patient had a stricture of he deep urethra which was the result of a long antecedent urethritis in which there was ulceration, perforation and extravasation; in this case I operated. This patient died about six months afterwards from a general tuberculosis of a very diffuse character, and this was the only fatal case of genito-urinary tuberculosis I have seen during that period of time.

The methods of diagnosis in the cases to which I refer lack the scientific accuracy of those here presented by the authors of the papers under discussion, and I can not add to the wonderful collection of anatomical specimens that are here displayed, the majority of cases that have been under my care still carry them about and still find them useful and entertaining. So far as my powers of diagnosis are concerned, every variety of tuberculosis of the genito-urinary tract is included from the testicle to the kidney, with destruction of the kidney, involvement of the ureters, tuberculosis of the bladder with ulceration and perforation, double suppurating epididymis and tuberculosis of the testicle itself.

In suspicious cases of tuberculosis of the kidneys or the bladder there is one symptom that I find to be always present, *i.e.*, polyuria, which will aid us in making a correct diagnosis.

Patients who come to me with this symptom fully developed and who present no other obvious cause, always arouse suspicion and I will not make any local exploration, not even pass a catheter, until I am satisfied they are not the subjects of tuberculosis of the genito-urinary tract, lest I transform frequent micturition into *frequent and painful* micturition. Sometimes it takes months to do this, but in none of the cases that I refer to have I failed to find the tubercle bacilli.

On the other hand careful watching of these patients leads me to believe that, in the great majority of cases, hygienic treatment will give a partial or full recovery. At the first session of the Association I reported a case in which there was frequent and painful micturition indicative of pyelitis. At that time the gentleman was under my care and suffering from a ferocious pyelitis and I brought him to New York in 1867 to consult Drs. Van Buren and Keyes who suggested tuberculosis as the cause. All local treatment was stopped. He was

given cod-liver oil and sent to Dakota where he began to gain. A lumbar abscess formed which opened spontaneously. Only last week I saw this man and he was the strongest of three sons of the family, although he still has tubercle bacilli in his urine. He has lived a useful and laborious life.

I have in mind another case seen fifteen years ago, a gentleman supposed to have tuberculosis of the left kidney following traumatism. During the course of fifteen years he has had a double tubercular epididymitis; he has had tuberculous ulceration of the deep urethra with extravasation. He voided urine very frequently, sometimes fifty-six times in the twenty-four hours. Fifteen years have gone by and yet he is in good condition, being in full weight and the head of a large business, leading a useful and happy life. There are tubercle bacilli in the urine and he voids urine about 8 times in the 24 hours. Had I undertaken surgical measures I think the man would have had a general tuberculosis.

Seven years ago a patient developed a tuberculous epididymis with sloughing of the scrotum of the left side and a tuberculous degeneration of the testicle. During my absence from home he went to a hospital and a distinguished gentleman there threw up his hands and said he must be castrated immediately; but this patient said "Hold on!" and so escaped from that hospital and came back to me. That man has recovered. I saw him a few weeks ago and he is still very well.

DR. HUGH H. YOUNG, of Baltimore.—I should like to ask Dr. Chismore whether, in the hygienic and climatic treatment, the patient rests or takes active outdoor life.

DR. CHISMORE.—In a large number of cases the only treatment was allowing him to go unmolested; when over-worked, relief from work, and cod-liver oil given liberally.

DR. GEORGE K. SWINBURNE, of New York.—I should like to relate two cases that have come under my observation, although the latter part of the operations was done by others.

The first case was a gentleman who, in 1891, evidently had tuberculosis of the lungs and was sent to Kentucky where, by living in the open air, was apparently completely cured. Three years before I saw him the patient had symptoms which pointed to tuberculosis of the right kidney and, in St. Louis, improved so under creasote that operation was not considered necessary immediately. I could not get much of a history at the time but, while under my care, (he had suffered from grippe several weeks before,) he had painful and frequent urination with cloudy urine, which was examined microscopically and numerous tubercle bacilli were found. At the same time a local examination revealed an enlarged and tender prostate, showing a strong probability that it as well as the bladder was involved. There was nothing to be found on either side in the kidney region. The symptoms so strongly suggested calculus of the bladder that I felt he ought to have the bladder searched. Wishing to share the responsibility with some one else I asked DR. ALEXANDER to see the case with me. The urethra was so exceedingly sensitive that no instrument could be passed without anesthesia, so ether was administered. The searcher revealed no calculus. He improved by rest in bed and proper feeding. I did not feel warranted then in suggesting any operative procedure. He was very anxious to go to Paris so he went feeling fairly comfortable but he returned within two months, having lost much weight and having a large swelling in

the right lumbar region. He went to Dr. Bull who did a nephrotomy for a large pyelonephrosis. This preliminary nephrotomy was followed shortly after by a nephrectomy and after that the patient gained nearly fifty pounds, and has remained in a much better state of health than he has had for years and this in spite of the fact that he undoubtedly has some foci still. The operation was done the latter part of the summer of '99.

The second case I saw in January, 1900, he was a bookkeeper who was referred to me by Dr. Cowell in Bridgeport. This patient had had several attacks of painful and frequent urination which required him to absent himself from business; during the intervals he was able to go to his work. Several years previous he gave a history of having had pulmonary tuberculosis. Examination of this gentleman showed a hard tumor in the region of the right kidney; nothing was found on the left side. Examination of the urine revealed the presence of tubercle bacilli. I believed from his symptoms that there was some involvement of the prostate if not the bladder. Although the case seemed pretty clear that a nephrectomy was indicated or at least an exploratory operation, but believing that a cystoscopic examination and catheterization of the ureter would give further information, I asked Dr. Alexander to see the case with me. The bladder was normal but clouding of the lens of the instrument prevented catheterization of the ureter. The patient went home intending to return for operation. Seven days after the examination he set up an epididymitis which was very painful and caused him to lose much strength. He afterwards came to New York and in the Mt. Sinai Hospital was operated upon by Dr. Gerster who removed the right kidney, which was completely destroyed by disease. Six months after the operation he was able to return to work and was feeling very comfortable and apparently perfectly well. The operation was done about 2 years ago and the patient, although not strong, is able to be at work, which he could not do before the operation, and maintains a condition of fair health.

DR. BRANSFORD LEWIS, of St. Louis.—It seems to me that we should occupy a middle ground in this matter and be governed in our treatment by each case and not by any generalized reports, such as Dr. Chismore has given. We all know that urinary tuberculosis, especially when confined to isolated parts, may be recovered from; also, that they do have a tendency to become worse and involve other organs. In cases of strictly localized tuberculosis of the genito-urinary tract I believe that patients are safer if that part be removed, and then the usual additional treatment for this condition be given. I think that the statistics of cases of late years will bear out the correctness of my position. Therefore, I think it is very important that we should be able to determine whether there is a localized tubercular infection or not, whether two kidneys are infected or one, and act accordingly. If but one kidney be involved, especially if it be severely involved, it cannot be denied that it is advisable to remove the source of infection. Again it is known that the removal of the worse infected kidney has a beneficial influence upon the kidney less infected. We all know, too, the efficacy of simply making an opening and exposing the peritoneum, applying iodoform or some simple measure, in cases of tubercular peritonitis.

Bearing upon the subject of the danger of making local investigations in these conditions I wish to say that, within the last few months I have been using measures of investigation quite considerably. From what I had read I was lead to believe that local investigation was to be condemned on account of its liability to cause extension of tuberculous infection, etc., but subsequent experience

has changed my views somewhat. In one case where the tubercle bacilli were found in the urine abundantly and where I wished to ascertain if the tuberculosis involved one or both kidneys I repeatedly catheterized the ureters, doing so in my office, without any disturbance following; I produced no bad effects upon this case whatever. I have three cases in mind, two males and one female, in which I have made repeated ureteral catheterization and have been washing out their kidney-pelves with boric acid solution. In two of them (males), instead of there being any additional trouble following the procedure, the unilateral pyelitis that was present has disappeared and the urine is now clear in each. In the case of the female, there is movable and dislocated kidney present, and a bend in the ureter prevents favorable drainage from it; so that I suppose anchoring of the kidney will be necessary.

DR. JAMES BELL, of Montreal.—I have listened with much pleasure to the discussion of this subject. I was much surprised at Dr. Brown's statement that as the result of his observations and investigations he had arrived at the conclusion that spontaneous cure of tuberculous lesions of the kidney was very rare. I should like to refer to at least one case in which there was a spontaneous cure of a chronic form of tuberculosis of the kidney, the disease being limited to a single organ. I have seen several times in the autopsy-room cases in which one kidney appeared normal while the other existed merely as a remnant which lead the pathologist to infer that the kidney had been cured spontaneously. I have also on two occasions opened a sac of pus which was simply the remnant of a kidney undoubtedly tubercular in which the patient got well from the tubercular condition. I think that many of these cases when left alone open spontaneously. There are many cases of obscure lumbar abscess where one cannot determine the origin of the pus, some of these probably result from localized tubercular lesions of the kidney which have undergone spontaneous cure.

With reference to Dr. Thorndike's exhibition of a case of a tubercular nodule in the prostate without evidences of tuberculosis anywhere else, reminds me that I have a similar experience to report. Three or four years ago an elderly man, 65 or 70 years of age, after an acute onset, came to me with frequent and painful micturition. He had an enlarged prostate. The urgency of the symptoms called for a suprapubic cystotomy and drainage which gave him much relief, and he seemed to be none the worse for the operation. On the third day he died suddenly during the night, and the autopsy revealed the fact that he had died of cerebral hemorrhage. All his organs were examined and the only tubercular lesion found was a single large nodule, as large as a walnut, a caseating tubercular growth in the prostate; the immediate symptoms were referable to the congestion and inflammatory action at the neck of the bladder. I do not think such cases are very common.

DR. J. P. BRYSON, of St. Louis, thought that Dr. Chismore's observations were of the greatest value. He had many of his patients out in California and in New Mexico who were deriving much benefit. His remarks were intended to apply as far as medical and hygienic treatment were concerned only to tuberculosis of the kidney. He remembered the case reported by Dr. Swinburne and thought it would have been better to have removed the most diseased kidney when the patient was first seen. Though there was no fever there were manifestations of a beginning infection about the lower urinary passages; and it seemed advisable to place him on general treatment until the disease should more thoroughly localize itself. Tubercle bacilli were found in the urine. The case well illustrates

the mimicry of stone by tuberculous disease. The differential diagnosis was made chiefly from the history of the case, which showed that the crisis developed in the night and because urination, due to slight polyuria was greatly increased also during the night. The nephrectomy was of great benefit, the patient now being in a satisfactory condition.

In conclusion he would like to say that he had not up to this time done a double castration for tuberculosis.

Dr. Orville Horwitz, of Philadelphia.—I have listened with much interest to the excellent papers and interesting discussion of tuberculosis of the genito-urinary tract. I have already occupied so much of the time of the Association that I will confine myself to the observations made by Dr. Chismore.

The extraordinary results obtained by him from the conservative method of treatment which he instituted for tuberculosis of the genito-urinary tract is due to the remarkable climatic influences of California. Any statement emanating from a gentleman of his standing and experience must necessarily carry great weight, but I venture to assert that if Dr. Chismore resided in Pennsylvania he would find that something more is needed for the relief of these cases besides climate.

Patients constantly present themselves who have been treated on this plan, who are permanent invalids, broken down in health, with general tubercular infection and too late for any surgical interference. I have had many patients who have refused surgical treatment take up their residence in California or New Mexico and have been much benefited by their sojourn in those latitudes. In some instances the disease has remained localized and quiescent. I have already pointed out that patients in this condition are by no means free from danger. I should hesitate to send a patient away with a primary tubercular affection which might be removed. I have had an opportunity of watching five cases of primary tuberculosis of the kidney where operation was refused. Three are dead and the remaining two are helpless invalids. On the other hand I have on several occasions removed a primary tubercular kidney, and these patients are still living and enjoy good health; hence I believe that when a clear diagnosis of a localized primary tubercular foci is clearly made out it is our duty to remove it, subsequently removing our patient to a suitable climate, that his constitution may be fortified against further invasion.

The Surgical Treatment of Bright's Disease.—By Ramon Guiteras, of New York.—The author gave an extensive review of the literature and history of the subject, and pointed out that the first operation for Bright's disease was performed by Harrison in 1878 in a case of subacute nephritis following scarlatina, and accompanied by lumbar pain. The diagnosis was renal abscess, but on performing nephrotomy nothing but a medical nephritis was found. The albuminuria and the pain disappeared after nephrotomy in this case. Here, then, we have the first operation for a medical nephritis, but it must be remembered that Harrison had thought that in this case there was a surgical condition present, namely, a renal abscess, so that he really did not operate upon the kidney with the specific object of curing a nephritis. Since that time Harrison has operated on several cases of a similar character and noted that the relief of renal tension produced by nephrotomy induced a retrogression of the nephritis. Newman of Glasgow published some years later two cases of nephritis in which nephropexy, performed on account of the mobility of the organ, was followed by an improvement in the Bright's disease. Since 1886 a number of cases of chronic Bright's

disease have been operated upon by nephrectomy and nephrotomy usually when there was a nephralgia or a hematuria, or both, or else when some surgical condition, such as a stone, tumor, suppuration, etc., was suspected. Israel's work showed that the so-called essential hematurias and nephralgias are frequently dependent upon chronic nephritis, and that in such cases nephrotomy is of benefit. He does not consider, however, chronic Bright's disease without these symptoms as amenable to surgical treatment, and emphatically denies his intention of treating ordinary typical cases of Bright's disease by nephrotomy.

Edebohls of New York was the first to operate upon kidneys with chronic Bright's disease with the specific object of curing the nephritis, and not simply for the purpose of relieving symptoms, or with the expectation of finding some strictly surgical condition. Edebohls operated upon eighteen patients, in sixteen of whom he performed nephropexy by a method involving the stripping of the capsule from one-half of the organ, and anchoring it to the posterior abdominal wall, while in the remaining two cases he simply decapsulated the kidneys and cut away the capsule without anchoring the kidney afterwards. There was no mortality in this group of cases, and the results were such as to justify the further employment of this operation (decapsulation) as a means of treating chronic nephritis.

The author reported two cases of chronic Bright's disease, which he operated upon by stripping the capsule. The first case was that of a man aged 79 years in which complete double decapsulation was performed, the second that of a woman aged 35 years in whom a partial decapsulation and nephropexy was performed. In a third case a woman aged 44 years who was suffering from chronic nephritis, but who was in fair condition, collapsed on the operating table before the kidneys had been exposed, and was resuscitated with difficulty.

The first case reported by the author was operated upon over a month ago, and has already shown improvement. The second case was operated upon two weeks before the presentation of this report, and sufficient time has not yet elapsed to warrant conclusions as to its results. The third case cannot be considered as the operation was not completed.

Other cases have been referred to the author for operation, but they were considered unsuitable, either because they did not show sufficient symptoms of chronic nephritis to warrant an operation, or because they were too far advanced to offer fair chances for a trial of this procedure.

The author concludes (1) That nephropexy is always a good procedure in movable kidney in which chronic nephritis is present. (2) That nephrotomy has proved to be valuable in unilateral Bright's associated with hematuria and nephralgia, and (3) That complete bilateral decapsulation has not as yet been employed extensively enough to warrant any positive conclusion as to its value, up to the time of writing, with the exception of Edebohls' two cases, and the case here reported, no instances of decapsulation performed for the cure of chronic Bright's disease have been recorded.

DISCUSSION.

DR. ORVILLE HORWITZ, of Philadelphia.—My experience for the relief of chronic nephritis is limited to four cases, a detailed account of which will be found in the Transactions of the College of Physicians for 1897. The patients operated upon were presumed to be suffering with stone in the kidney, all the

symptoms of which being present but hematuria, the urine containing albumin and hyaline casts. The kidneys were exposed after the manner suggested by Edebohls. In each instance the capsule was incised, and in three cases the substance of the kidney structure was divided so that the pelvis could be examined. Nothing was found to account for the symptoms from which the individuals suffered; they all recovered from the operation and have been free from any kidney symptoms ever since. The casts and the albumin have permanently disappeared from the urine. It is presumed that these patients suffered from a chronic nephritis, associated with a slightly movable kidney, which occasionally became displaced, thereby kinking the ureter; this indeed is the only mode of accounting for the paroxysms of pain which simulated renal colic. It is conjectured that the cicatricial tissue surrounding the kidney, resulting from the operation, served to hold the organ firmly in place and thus prevent recurrence of the pain. The interesting feature in these cases is the disappearance of the nephritis ofter operation.

Dr. Ramon Guiteras, of New York.—A great many operations have been done for nephralgic and hematuric nephritis, and it was generally thought, in these cases, that there was a stone in the kidney. Tiffany reported a case in 1889 in which there was a nephritis accompanied by nephralgia and which was operated upon, a nephrotomy being done, with good results following. These operations at first were not done for Bright's disease but because it was thought some surgical condition existed such as stone in the kidney. Very often hematuria is not due to stone or other surgical diseases in the kidney but to some other condition of the organs such as chronic Bright's. One should remember, however, that one cannot always find a stone by an exploratory nephrotomy. Last year I tried to find a stone by exploratory nephrotomy, and passing probes down the ureters and failed, but, at a subsequent operation in which I removed the kidney, I found the stone after its removal.

Selections.

GENITO-URINARY DISEASES.

Chronic Cystitis Due to Bacillus Typhosus. — Report of a Case of Seven Years' Duration.—By HUGH H. YOUNG, M.D., (*Maryland Medical Journal*, Nov., 1901, p. 456.)

This interesting case has been referred to previously in articles by Gwyn, and by Richardson. The patient was a male, thirty nine years old, unimportant previous history. Complaint, bladder trouble dating back to an attack of typhoid fever, in August, 1893. On admission he complained of pain in the back, and pain on urination, which was more frequent than normal. Was constipated, but had no abdominal pain. Urine, neutral, cloudy, albumen abundant, sediment of pus cells. No diazo reaction. Though the symptoms were somewhat clouded, Dr. Osler considered it a definite case of typhoid fever. The patient was discharged two months after admission to the hospital, after which he returned to his work, but still noticed pus in the urine.

Four years later (July, 1897), patient contracted gonorrhea, which was soon cured, but the urine remained purulent, as before. In March, 1898, the urine was very cloudy, of a peculiar gray opacity, due to pus cells, and small, thin bacilli, which decolorized by Gram. No other bacteria present. A culture taken from the bladder with a searcher, after sterilizing urethra and penis, showed on plate cultures a pure culture of a bacillus which decolorized by Gram's stain. Inoculations into various media corroborated this evidence. Suprapubic aspiration of the bladder, showed the same organisms—identical with the bacillus typhosus.

He soon went to work again, and returned in September, 1899, with another attack of gonorrhea from which he has never been entirely freed.

Cultures made on numerous occasions from urine taken from the bladder with aseptic precautions, still showed the bacillus typhosus in pure culture. Widal tests always positive.

With the cystoscope, the bladder mucosa was generally red in color, the individual vessels not being visible. Numerous small ulcers covered with fibrin present. Ureteral orifices deep red in color, and surrounded by swollen mucous membrane. Owing to the great amount of pus and fibrin in the bladder, the examinations were constantly interfered with. Diagnosis: General chronic ulcerative cystitis.

Throughout the course of the disease the patient complained of slight malaise, chronic constipation, and pain in the back, but was never acutely ill. Urine always cloudy. Never contained blood. No pain. Stream forcible. Albumen averaged 0.5 per cent. After cystoscopic examination, an acute exacerbation of the gonorrhea occurred, followed by an invasion of the bladder with a gonococcus —at first only a few diplococci appearing in the last urine, but finally great numbers, intracellular, decolorizing by Gram. Cultures were also obtained from the bladder, by suprapubic aspiration. This invasion of the bladder occurred despite the constant administration of urotropin and bichlorid irrigations (1 to 50,000)

Four months after this infection of the bladder, typhoid bacilli and gonococci were both still present in considerable numbers.

There are but two other recorded cases of chronic cystitis due to typhoid bacilli—those of Rovsing, and of Houston. A. L. W.

The Bradshaw Lecture on Nephrectomy, Nephrolithotomy, and Lithotomy.—By T. R. JESSOP, F.R.C.S. (*British Medical Journal,* Dec. 14, 1901, page 1721.)

The speaker undertook his first nephrectomy in June, 1877, this being the first nephrectomy having been undertaken of set purpose in England. The patient was a child 2¼ years old, with a large tumor in the left loin, and bloody urine. The new growth and the kidney were both removed, and immediate recovery was complete and satisfactory. Several months later the child died, however, with signs of a recurrence. Since then he has performed the operation in young children eleven times, in nine by the lumbar and two by the abdominal route. The choice of route has been determined by the size of the tumor and its mobility. Nine of the eleven patients recovered from the operation, but the longest survivor lived only 2 years and 5 months, while one died after nine weeks. This large mortality forces the question whether it is worth while to incur the undoubted immediate risk of the operation for the possibility of so small a gain. It is even doubtful if in these 11 children there was any actual increase in the aggregate of life obtained. In every case the diagnosis was not made until the disease had made considerable headway. The only prominent signs of the disease in young children are the presence of a tumor in the loin, and hematuria. The latter is by no means constant, and the former, even if it be of fetal origin, has usually attained considerable development before its existence is susupected. Early diagnosis and operation are the only means by which this great mortality can be reduced.

In adults the results are much more encouraging. Of 16 adults operated on, 6 had tumor, 3 calculous pyelitis, 4 pyelitis, 2 fistula following nephrolithotomy, and 1 had uncontrollable hemorrhage after nephrolithotomy. Of the 6 tumor cases, 2 recovered, 2 died within a few hours from shock, 1 died on the third day of intestinal obstruction (not relieved by enterostomy, and 1 died nine days after operation from exhaustion. Of the other 10 cases, 2 died and 8 recovered.

Of the 5 transperitoneal operations, 4 died, while but 2 died of the 11 lumbar-nephrectomies. Of the 16, the mortality was 37½ per cent. The lumbar route is to be preferred in general whenever the kidney is known to be undergoing septic inflammation, as also in those cases of neoplasm in which the growth is mobile and not of too great size. The difficulty of extracting a large growth through the limited space between the costal margin and the iliac crest would suggest the desirability of attacking it from the front. By this means also the opposite kidney and other viscera may be examined, and the renal vessels can be tied so as to render the operation nearly bloodless.

In May, 1888, the speaker cut down on a kidney in a man aged 52, whose chief complaint was "milky urine." Twenty-six ounces of pus were removed from the shell of the kidney, in addition to which he removed a stone weighing 11 ozs. 160 grs. The patient made an uneventful recovery, and died 5 years later of intestinal obstruction. There was an entire absence of pain from beginning to end, which serves to emphasize the fact that the larger the stone in the kidney, the smaller is the amount of pain, presumably owing to the fact that a small stone is mobile, and lies loosely in the pelvis, partially blocking the orifice of

the ureter from time to time and giving rise to more pain than a larger stone fixed in a calyx or embedded in the kidney substance.

On the other hand a patient who required daily hypodermatic injections of morphine was fully relieved by the passage *per urethram* of a small lithic acid calculus.

Several instances are mentioned to point to the probability of a connection between the manipulation of the kidney during the examination and the subsequent spontaneous passage of a calculus *per urethram*. The possibility of this occurrence should not be lost sight of, lest the stone become detached and released, necessitating a further operation for the recovery of the stone from the ureter or elsewhere.

Since 1896 the speaker has withdrawn the kidney from its bed so as to fully expose it outside the lumbar wound, splitting it into two symmetrical halves by an incision carried from its convex border through to the pelvis, with the object of curetting and otherwise treating masses of tubercle, then passing a few catgut sutures through the kidney substance and replacing the organ in its proper position. The results of this procedure, suggested by Henry Morris, have been eminently satisfactory. In withdrawing the kidney there is danger of tearing the pelvis or even detaching the ureter.

As to removal of vesical calculus the mortality after either litholapaxy or suprapubic lithotomy depends less upon the nature of the operation itself than upon the presence or absence of complications. The presence of cystitis, if of long standing, and if the stone be of more than moderate size, contraindicates litholapaxy, as this would be apt to convert a mild into an acute and relatively dangerous inflammation. Encysted calculus also contraindicates the crushing operation.

Perineal lithotomy and lithotrity have been discarded entirely since 1890, and the speaker is well satisfied with litholapaxy and suprapubic lithotomy. Perineal lithotomy is all but relegated to the past, and is doomed to become ere long a subject for the historian alone. A. L. W.

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